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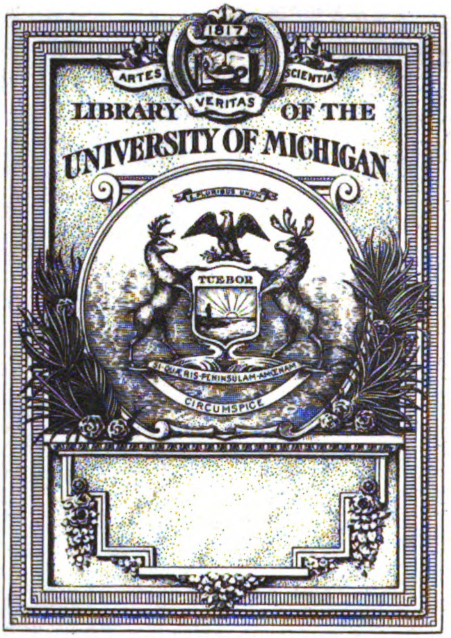
Annual Report

Ohio State Board of Agriculture



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FIFTY-FIFTH ANNUAL REPORT

OF THE

OHIO STATE BOARD OF AGRICULTURE

WITH AN ABSTRACT OF
THE PROCEEDINGS OF

THE COUNTY AGRICULTURAL SOCIETIES

FOR THE YEAR 1900

TO THE

GENERAL ASSEMBLY OF THE STATE OF OHIO.

CINCINNATI, OHIO
PRESS OF C. J. KREHBIEL & CO.
1901

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ANNUAL REPORT

OF THE

Ohio State Board of Agriculture

FOR THE YEAR 1900.

DEPARTMENT OF AGRICULTURE,
COLUMBUS, March 15, 1901.

To the Honorable, the General Assembly of Ohio:

GENTLEMEN:—Complying with the requirements of the Statutes of Ohio, the State Board of Agriculture submits to your honorable body its Fifty-fifth Annual Report, which contains the transactions of the Board for the year 1900, Crop and Live Stock Statistics, Agricultural Statistics gathered by county auditors and reported to the Department, Tables of Comparative Statistics, Bulletin of Entries and Awards of the Fiftieth Annual State Fair, Abstracts of Reports from County Agricultural Societies, Report on Commercial Fertilizers, Proceedings of the Fifty-sixth Annual Meeting of the State Board of Agriculture, Report of Farmers' Institutes, Proceedings of the State Farmers' Institute, and Report of the State Horticultural Society.

The Department endeavors in every way to meet the constantly increasing demands upon its time and thought, and is pleased to report a flattering degree of success. Agricultural interests throughout the state are in a healthy and prosperous condition generally, and the relations existing between the Department and the farmers of Ohio are most pleasant and cordial.

The Board is happy to acknowledge the warm support and liberal aid extended to the cause of agriculture by the General Assembly, and the approval and appreciation of its work by all classes of citizens.

Respectfully submitted,
WELLS W. MILLER,
Secretary.

JAMES W. FLEMING,
Assistant Secretary.

OHIO STATE BOARD OF AGRICULTURE
1900

OFFICERS.

HARRY S. GRIMES, *President*. JONAS S. STUCKEY, *Vice-President*.
LAFAYETTE G. ELY, *Treasurer*.
WELLS W. MILLER, *Secretary*, Columbus. JAMES W. FLEMING, *Ass't Sec'y*, Columbus.

MEMBERS.

	Term Expires
LAFAYETTE G. ELY, Fayette, Fulton County	January, 1901
HARRY S. GRIMES, Portsmouth, Scioto County	January, 1901
GIDEON LIGGETT, Watkins, Union County	January, 1902
CHESTER BORDWELL, Batavia, Clermont County	January, 1902
DAVID J. GREEN, Renrock, Noble County	January, 1903
SAMUEL TAYLOR, Grove City, Franklin County	January, 1903
JONAS S. STUCKEY, Van Wert, Van Wert County	January, 1904
BENJAMIN P. BALDWIN, Tiger, Mahoning County	January, 1904
THADDEUS E. CROMLEY, Ashville, Pickaway County	January, 1905
THOMAS L. CALVERT, Selma, Clark County	January, 1905

EXECUTIVE COMMITTEE.

HARRY S. GRIMES. GIDEON LIGGETT. SAMUEL TAYLOR.
THADDEUS E. CROMLEY.

FARMERS' INSTITUTE COMMITTEE.

JONAS S. STUCKEY. LAFAYETTE G. ELY. BENJAMIN P. BALDWIN.

AUDITING COMMITTEE.

CHESTER BORDWELL. DAVID J. GREEN. THOMAS L. CALVERT.

OHIO STATE BOARD OF AGRICULTURE
1901

OFFICERS.

JONAS S. STUCKEY, *President.*
DAVID J. GREEN, *Vice-President.*
GIDEON LIGGETT, *Treasurer.*
WELLS W. MILLER, *Secretary,* Columbus.
JAMES W. FLEMING, *Ass't Sec'y,* Columbus.

MEMBERS.

	Term Expires.
GIDEON LIGGETT, Watkins, Union County	January, 1902
CHESTER BORDWELL, Batavia, Clermont County	January, 1902
DAVID J. GREEN, Renrock, Noble County	January, 1903
SAMUEL TAYLOR, Grove City, Franklin County	January, 1903
JONAS S. STUCKEY, Van Wert, Van Wert County	January, 1904
BENJAMIN P. BALDWIN, Tiger, Mahoning County	January, 1904
THADDEUS E. CROMLEY, Ashville, Pickaway County	January, 1905
THOMAS L. CALVERT, Selma, Clark County	January, 1905
WILLIAM MILLER, Gypsum, Ottawa County	January, 1906
JEREMIAH L. CARPENTER, Carpenter, Meigs County	January, 1906

EXECUTIVE COMMITTEE.

JONAS S. STUCKEY, President.
THADDEUS E. CROMLEY.
CHESTER BORDWELL.
JEREMIAH L. CARPENTER.

FARMERS' INSTITUTE COMMITTEE.

GIDEON LIGGETT, Chairman.
DAVID J. GREEN.
THOMAS L. CALVERT.

AUDITING COMMITTEE.

BENJAMIN P. BALDWIN, Chairman.
SAMUEL TAYLOR.
WILLIAM MILLER.

LIST OF MEMBERS OF THE OHIO STATE BOARD OF AGRICULTURE FROM THE ORGANIZATION OF THE BOARD TO DATE.

(NOTE.—The act creating the State Board of Agriculture, passed in 1846, provided for fifty-three members and named them. The act was amended in 1847, reducing the number of members to ten. Five members were elected each year for a term of two years until 1898, when the act was so amended as to provide for the election of two members each year for a term of five years.)

Names.	Year of Service.	Residence.
John B. Bayless	1846	Jefferson County.
Henry C. Brish	1846	Seneca County.
Frederick Bonner	1846	Greene County.
Joseph Burns	1846	Coshocton County.
John Chaney	1846	Fairfield County.
G. W. Cowden	1846	Trumbull County.
Absalom Dunn	1846	Butler County.
John Eckels	1846	Hancock County.
Elias Florence	1846	Pickaway County.
John Fuller	1846	Erie County.
Geo. W. Gibbons	1846	Muskingum County.
William Gill	1846	Pickaway County.
H. N. Gillett	1846	Lawrence County.
L. C. Goble	1846	Putnam County.
David Gregory	1846	Delaware County.
Anson Howard	1846	Champaign County.
John Johnston	1846	Miami County.
Aaron Johnson	1846	Perry County.
Greenbury Keen	1846	Portage County.
Billius Kirtland	1846	Mahoning County.
Newton Larsh	1846	Preble County.
Liba Lindley	1846	Athens County.
Jas. Loudon	1846	Brown County.
John McElderry	1846	Tuscarawas County.
Wm. McFadden	1846	Harrison County.
Beatty McFarland	1846	Jefferson County.
John Martin	1846	Columbiana County.
Isaac Moore	1846	Lake County.
Gilman C. Mudgett	1846	Paulding County.
Samuel Myers	1846	Crawford County.
Isaac Neiswanger	1846	Belmont County.
Simon Perkins	1846	Summit County.
Henry Protzman	1846	Montgomery County.
W. R. Putnam, Jr.	1846	Washington County.
Felix Renick	1846	Ross County.
Jas. L. Reynolds	1846	Stark County.
Benj. Ruggles	1846	Belmont County.
Saml. Spangler	1846	Fairfield County.
David Stevens	1846	Richland County.
Abraham Studdebaker	1846	Darke County.
Dowty Utter	1846	Clermont County.
John I. Vanmeter	1846	Pike County.
Richard Warner	1846	Medina County.
Jesse Wilson	1846	Shelby County.
J. M. Millikin	1846	Hamilton.
J. T. Pugsley	1846	Convenience.

Members of the State Board of Agriculture—Continued.

Names.	Years of Service Inclusive.	Postoffice.
Allen Trimble	1846–51	Hillsboro.
M. L. Sullivant	1846–53	Columbus.
Saml. Medary	1846–53	Columbus.
Darius Lapham	1846–50	Cincinnati.
Arthur Watts	1846–52	Chillicothe.
J. P. Kirtland	1846–48	Cleveland.
A. E. Strickle	1846–49	Wilmington.
M. B. Bateham	1847–51	Columbus.
John Codding	1847–49	Granger.
C. Springer	1848–52	Meadow Farm.
J. M. Edwards	1848–52	Canfield.
J. G. Gest	1848–54	Spring Valley.
F. R. Elliott	1849–51	Cleveland.
J. T. Pugsley	1850–51	Convenience.
S. Halloway	1850–51	St. Clairsville.
William Case	1852–53	Cleveland.
Philo Adams	1852–53	Huron.
R. W. Musgrave	1852–57	Sulphur Springs.
R. W. Steele	1853–56	Dayton.
William H. Ladd	1853–56	Richmond.
D. McIntosh	1853–54	Shalersville.
J. T. Worthington	1853–56	Chillicothe.
Joseph Sullivant	1854–55	Columbus.
John K. Greene	1854–57	Cincinnati.
James L. Cox	1854–55	Zanesville.
B. Stedman	1854–57	Cleveland.
Alexander Waddle	1855–60	South Charleston.
Abel Krum	1855–58	Cherry Valley.
Lucien Buttles	1856–59	Columbus.
G. W. Baker	1856–57	Marietta.
John M. Milliken	1857–62	Hamilton.
Luther Smith	1857–58	West Liberty.
Thomas S. Webb	1857–58	Massillon.
Norton S. Townshend	1858–63	Avon.
L. Q. Rawson	1858–59	Fremont.
James M. Trimble	1858–61	Hillsboro.
John Reber	1858–61	Lancaster.
D. E. Gardner	1859–64	Toledo.
William Dewitt	1859–64	Cleveland.
C. W. Potwin	1859–62	Zanesville.
T. C. Jones	1860–67	Delaware.
Henry B. Perkins	1860–63	Warren.
David Taylor	1861–66	Columbus.
Jacob Egbert	1862–63	Lebanon.
Nelson J. Turney	1862–69	Circleville.
D. McMillan	1863–70	Xenia.
W. R. Putnam	1863–64	Marietta.
William F. Greer	1864–67	Painesville.
James Fullington	1864–69	Irwin Station.
William B. McClung	1864–71	Troy.
James W. Ross	1865–70	Perrysburg.
R. R. Donnelly	1865–68	Wooster.
James Buckingham	1865–72	Zanesville.
J. Park Alexander	1867–70	Akron.
Norton S. Townshend	1868–69	Avon.
William Lang	1868–71	Tiffin.
D. C. Richmond	1869–74	Sandusky.
R. P. Cannon	1870–75	Aurora.
James B. Jamison	1870–77	Cadiz.
L. G. Delano	1870–75	Chillicothe.

Members of the State Board of Agriculture—Continued.

Names.	Years of Service Inclusive.	Postoffice.
L. B. Sprague	1871–76	Springfield.
Simpson Harmount	1871–76	New Philadelphia.
John A. Warder	1871–76	Cleves.
W. S. Hickox	1872–73	Mansfield.
B. W. Carlisle	1872–79	Hooker's Station.
Justus C. Stephens	1873–74	Kenton.
John M. Pugh	1874–79	Columbus.
L. B. Wing	1875–80	Newark.
Russell C. Thompson	1875–76	Sylvania.
Leo Weltz	1876–83	Wilmington.
D. L. Pope	1876–81	Welshfield.
Charles Smith	1877–80	Marion.
E. T. Stickney	1877–78	Republic.
A. E. Stone	1877–78	Gallipolis.
Peter Murphy	1877–80	Hughes' Station.
W. N. Cowden	1878–83	Quaker City.
R. Baker	1879–82	Elyria.
Arvine C. Wales	1879–82	Massillon.
R. H. Hayman	1880–81	Portsmouth.
O. P. Chaney	1880–82	Canal Winchester.
C. D. Bailey	1881–88	Gallipolis.
J. C. Levering	1881–86	Levering.
William S. Foster	1881–88	Urbana.
L. B. Harris	1882–87	Upper Sandusky.
J. H. Brigham	1882–89	Delta.
L. N. Bonham	1883–86	Oxford.
H. Talcott	1883–87	Jefferson.
N. A. Sims	1883–85	Columbus.
T. P. Shields	1884–87	Watkins.
John Pow	1884–89	Salem.
S. H. Hurst	1884–89	Chillicothe.
J. J. Sullivan	1887–88	Millersburg.
Joseph H. Terrell	1887–88	New Vienna.
J. G. Russell	1887–90	Mt. Gilead.
H. G. Tryon	1888–91	Willoughby.
J. M. Black	1888–90	Hanover.
A. H. Kling	1889–96	Marion.
H. S. Grimes	1889–90	Portsmouth.
A. J. Clark	1889–98	Cambridge.
W. W. Miller	1889–94	Castalia.
J. W. Pollock	1890–93	Cedarville.
N. Ohmer	1890–95	Dayton.
L. G. Ely	1890–91	West Unity.
E. L. Hinman	1890–93	Columbus.
J. C. Bower	1891–98	Athens.
George Lewis	1891–94	Van Wert.
Chester Bordwell	1892–93	Batavia.
F. A. Derthick	1892–95	Mantua.
J. T. Robinson	1894–97	Rockaway.
G. Liggett	1894	Watkins.
J. H. Pringle	1894–95	Cardington.
E. C. Ellis	1895–98	Crestvue.
Chester Bordwell	1895	Batavia.
L. G. Ely	1896–1900	Fayette.
H. S. Grimes	1896–1900	Portsmouth.
Albert Hale	1896–99	Mogadore.
J. S. Stuckey	1897	Van Wert.

MEMBERS OF THE STATE BOARD OF AGRICULTURE—Concluded.

Names.	Years of Service Inclusive.	Postoffice.
S. H. Ellis	1898–99	Waynesville.
D. J. Green	1899	Renrock.
B. P. Baldwin	1899	Tiger.
Samuel Taylor	1899	Grove City.
T. E. Cromley	1900	Ashville.
T. L. Calvert	1900	Selma.
Wm. Miller	1901	Gypsum.
J. L. Carpenter	1901	Carpenter.

LIST OF OFFICERS OF THE OHIO STATE BOARD OF AGRICULTURE FROM ITS ORGANIZATION TO DATE; ALSO TABLE SHOWING PLACE OF HOLDING AND RECEIPTS OF EACH STATE FAIR.

Year	President.	Treasurer.	Secretary.	Place of Fair.	Receipts.
1846	Allen Trimble	M. L. Sullivant	Samuel Medary		
1847	Same	Same	M. B. Bateham		
1848	Same	Same	Same		
1849	M. L. Sullivant	Samuel Medary	Same		
1850	Same	Same	Same	Cincinnati	$8,036 18
1851	Same	Same	W. W. Mather	Columbus	8,204 09
1852	Arthur Watts	Same	Same	Cleveland	13,360 00
1853	Samuel Medary	M. L. Sullivant	Geo. Sprague	Dayton	13,996 37
1854	R. W. Musgrave	Joseph Sullivant	Same	Newark	8,824 58
1855	J. T. Worthington	Same	Same	Columbus	9,745 54
1856	William H. Ladd	Lucien Buttles	Same	Cleveland	16,684 20
1857	Alexander Waddle	Same	J. H. Klippart	Cincinnati	17,530 75
1858	John M. Milikin	Same	Same	Sandusky	9,997 70
1859	N. S. Townshend	Same	Same	Zanesville	8,958 82
1860	Alexander Waddle	Chas. W. Potwin	Same	Dayton	11,998 50
1861	Darwin E. Gardner	Same	Same	“	8,036 18
1862	Thomas C. Jones	David Taylor	Same	Cleveland	11,260 64
1863	N. S. Townshend	Same	Same	“	11,142 00
1864	Nelson J. Turney	Same	Same	Columbus	12,620 54
1865	Same	Same	Same	“	10,658 65
1866	William B. McClung	Same	Same	Dayton	14,035 80
1867	Daniel McMillan	Jas. Buckingham.	Same	“	18,692 98
1868	James Fullington	Same	Same	Toledo	15,606 25
1869	Same	Same	Same	“	19,606 50
1870	James W. Ross	J. Park Alexander	Same	Springfield	18,252 85
1871	William Lang	Jas. Buckingham.	Same	“	16,460 25
1872	James Buckingham	Simps'n Harmount	Same	Mansfield	19,149 45
1873	Lincoln G. Delano	Same	Same	“	22,517 50
1874	Same	Same	Same	Columbus	27,674 79
1875	R. P. Cannon	Same	Same	“	20,539 30
1876	S. Harmount	J. M. Pugh	Same	“	11,909 61
1877	J. B. Jamison	Same	Same	“	21,151 21
1878	J. M. Pugh	L. B. Wing	Same	“	11,979 50
1879	B. W. Carlisle	Same	J. W. Fleming	“	30,703 35
1880	L. B. Wing	D. L. Pope	W. I. Chamberlin	“	23,682 20
1881	D. L. Pope	Leo. Weltz	Same	“	29,706 16
1882	R. Baker	W. N. Cowden	Same	“	34,082.52
1883	W. N. Cowden	L. B. Harris	Same	“	38,513 78
1884	W. S. Foster	Same	Same	“	33,306 48
1885	C. D. Bailey	J. C. Levering	Same	“	29,796 51
1886	L. N. Bonham	L. B. Harris	Same	“	30,533 17
1887	J. H. Brigham	Same	L. N. Bonham	“	30,902 10
1888	John Pow	J. G. Russell	Same	Centennial year, no fair	....
1889	Same	Same	Same	Columbus	19,637 41
1890	J. G. Russell	A. H. Kling	Same	“	27,574 55
1891	J. M. Black	Same	Same	“	33,878 64
1892	A. H. Kling	W. W. Miller	Same	“	30,357 19
1893	J. W. Pollock	Same	Same	“	19,350 93
1894	W. W. Miller	F. A. Derthick	Same	“	27,260 25
1895	A. J. Clark	Same	W. W. Miller	“	33,966 13
1896	J. C. Bower	A. J. Clark	Same	“	22,531 20
1897	J. T. Robinson	J. C. Bower	Same	“	30,369 48
1898	C. Bordwell	Same	Same	“	31,023 36
1899	L. G. Ely	H. S. Grimes	Same	“	33,749 17
1900	H. S. Grimes	L. G. Ely	Same	“	31,521 35
1901	J. S. Stuckey	G. Liggett	Same	“	....

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TRANSACTIONS

OF THE

Ohio State Board of Agriculture,

FOR THE YEAR 1900.

DEPARTMENT OF AGRICULTURE,
COLUMBUS, O., January 11, 1900.

The following named gentlemen, comprising the Ohio State Board of Agriculture for 1900, met for organization at 10 o'clock P. M.

	TERM EXPIRES.
L. G. Ely (West Unity, Williams Co.), Fulton county	January, 1901
H. S. Grimes, Portsmouth, Scioto county	January, 1901
G. Liggett, Watkins, Union County	January, 1902
C. Bordwell, Batavia, Clermont county	January, 1902
D. J. Green, Renrock, Noble county	January, 1903
Samuel Taylor, Pleasant Corners, Franklin county	January, 1903
J. S. Stuckey, Van Wert, Van Wert County	January, 1904
B. P. Baldwin, Tiger, Mahoning county	January, 1904
T. E. Cromley, Ashville, Pickaway County	January, 1905
T. L. Calvert, Selma, Clark county	January, 1905

The oath of office was administered by J. W. Fleming, Notary Public, to Messrs. Cromley and Calvert, the newly elected members. Whereupon the meeting was called to order, and Mr. L. G. Ely selected as temporary Chairman.

The Chairman stated that the first business in order would be the election of a President of the State Board of Agriculture for the ensuing term, and that nominations were in order.

Mr. Stuckey nominated Mr. H. S. Grimes, seconded by Mr. Liggett, and there being no further nominations the election of Mr. Grimes was made by acclamation.

For Vice-President, Mr. Bordwell placed in nomination Mr. J. S. Stuckey, and, on motion of Mr. Ely, his election was made by acclamation.

For Treasurer, Mr. Taylor presented the name of L. G. Ely, who, on motion of Mr. Stuckey, was elected by acclamation.

Mr. Cromley nominated for Assistant Secretary, for the ensuing term of four years, Mr. J. W. Fleming, his salary to be the same as he has been receiving during his last term. There being no further nominations, Mr.

Stuckey moved that the election be by acclamation, which was agreed to, and Mr. Fleming was elected.

The Secretary reported the condition and extent of fair ground improvements, stating the necessity for some further buildings and improvements in which the aid of the General Assembly should be secured, suggesting to that end the appointment of a legislative committee of the Board.

Mr. Ely moved that a legislative committee of three be appointed, the Secretary to be named as one of the three, and that such committee have full power to act for the Board. The motion was agreed to, and the President named as the committee Messrs. Cromley, Ely and Secretary Miller.

On motion of Mr. Ely the Board adjourned to meet at the call of the President.

After the adjournment of the Board January 11th, President Grimes announced the appointment of the following committees and assignments to departments:

EXECUTIVE COMMITTEE.

H. S. GRIMES, President; G. LIGGETT, SAMUEL TAYLOR and T. E. CROMLEY.

FARMERS' INSTITUTE COMMITTEE.

J. S. STUCKEY, L. G. ELY and B. P. BALDWIN.

AUDITING COMMITTEE.

C. BORDWELL, D. J. GREEN and T. L. CALVERT.

ASSIGNMENTS OF DEPARTMENTS.

First Department—Horses	C. Bordwell.
Second Department—Cattle	J. S. Stuckey.
Third Department—Sheep	G. Liggett.
Fourth Department—Swine	B. P. Baldwin.
Fifth Department—Poultry	T. L. Calvert.
Sixth Department—Farm Products	D. J. Green.
Seventh Department—Plants and Flowers	D. J. Green.
Seventh Department—Fruits	D. J. Green.
Eighth Department—Machinery and Implements	T. E. Cromley.
Ninth Department—Mechanics' and Manufacturers' Products	T. L. Calvert
Tenth Department—Woman's Work	Samuel Taylor.
Eleventh Department—Merchandise, Music, Etc	T. L. Calvert.
Twelfth Department—Fine Arts	Samuel Taylor.

DEPARTMENT OF AGRICULTURE,
COLUMBUS, O., February 27, 1900, 8:30 A. M.

The Board met pursuant to call, with President Grimes in the chair and all members present. The minutes of the preceding meeting were read and approved.

Mr. Cromley and Secretary Miller, of the legislative committee, reported progress with reference to the bill introduced in the House of Representatives by Mr. Wm. H. Crafts, providing for the issue of bonds for the purpose of raising money to erect new buildings and make other improvements on the State Fair grounds.

On motion of Mr. Liggett, Capt. Alexis Keeler was appointed Chief of Police for the ensuing State Fair.

Assistant Secretary Fleming presented communications expressing appreciation of the cup awards in grand sweepstakes cattle classes at State Fair of 1899, which were received from Mr. Lucian V. Axtell, of Lake County, Ohio, and from W. T. Miller & Sons, of Carlos City, Indiana.

On motion, the revision of premiums in the live stock departments was referred to committees as follows, the committees to report at the afternoon session:

Horses and Cattle—Messrs. Bordwell, Stuckey, Taylor and the Assistant Secretary.

Sheep and Swine—Messrs. Liggett, Baldwin, Ely and the Secretary.

Poultry—Messrs. Calvert, Cromley and Green.

On motion, a recess was taken till 1:30 P. M., at which hour the Board reassembled and proceeded to the transaction of business. The committee appointed on revision of premiums in horse and cattle departments submitted the following report:

The committee recommend for the horse department that in all breeding classes the premiums remain the same as last year;

That no changes be made in the classes for Grade Coach and Grade Draft;

That the classification for saddle horses remain the same as last year, but that the exhibition be given and awards made on Tuesday afternoon instead of at night, as heretofore;

That matched teams and fancy drivers be classified the same as last year and the exhibitions given at night;

That Shetland ponies remain the same as last year, but in the class of ponies other than Shetland the height limit be increased to fifty inches;

That in pony turnouts animals be limited to fifty inches in height and the exhibition given in the evening;

That the speed classes be referred to the member in charge and the Assistant Secretary, with instructions not to exceed in amount the money offered last year.

In revising the cattle department, the committee took into careful consideration the requests made by the National Association of Live Stock Exhibitors and by associations and exhibitors representing the individual breeds, concluding first that it would be unwise to consolidate any of the breeds being recognized as pure and having herd books or registers, and therefore recommend that the breeds recognized be given individual classification.

In compliance with the request of the National Live Stock Exhibitors'

Association, we recommend that in "breeders herd" it shall be required that the bull be under two years of age; also that a premium of $10.00 be added throughout all the classes, for two animals of either sex, the produce of one cow.

We recognize the justice of certain beef cattle breeders in urging greater recognition of young animals and the offering of third premiums, and while the revenues of the Board will not warrant the full amount of increase requested, we recommend the following for the beef breeds:

Bull 3 years old and over	$15 00	$10 00	$5 00
Bull 2 years old and under 3	15 00	10 00	5 00
Bull 1 year old and under 2	10 00	5 00	3 00
Bull under 1 year	10 00	5 00	3 00
Cow 3 years old and over	15 00	10 00	5 00
Cow or heifer 2 years and under 3	15 00	10 00	5 00
Heifer 1 year and under 2	10 00	5 00	3 00
Heifer under 1 year	10 00	5 00	3 00

SWEEPSTAKES.

Exhibitor's herd	$40 00
Breeder's young herd	40 00
Four animals, get of one sire	30 00
Two animals, produce of one cow	10 00

We recommend the striking out of the Galloway Class.

We recommend that the revision of rules and prizes for the milk test be referred to the Secretary and Assistant Secretary, with instructions not to exceed in amount the prizes offered last year.

Mr. Baldwin moved the adoption of the report.

Mr. Ely moved to amend by striking out the Devon Class, which motion prevailed. Mr. Green moved that the money saved by striking out Devons, be applied to the Shorthorn Class, in amount to raise the premiums on shorthorns to a total of five hundred dollars. The yeas and nays were demanded, resulting: yeas 5, nays 5; so the motion was disagreed to.

The question recurring on the original motion as amended, it was agreed to, and the report adopted.

The committee to revise premiums in the sheep and swine departments reported:

Recommending that competition in the sheep department be confined to American bred animals and those that have been imported not less than one year.

To add a third premium of $2.00 to each class of sheep, except Fat Sheep and other pure breeds, and reduce each sweepstakes premium to $10.00.

In the swine department, that the Victoria breed be included in the class with Suffolk, Yorkshire etc., in which class divide the Sweepstakes premiums into first, $10.00; second, $5.00; add third premium of $3.00 in all classes for boar six months and under one year, and sow six months and under one year.

Add third premium of $2.00 in all classes for boar under six months and for sow under six months.

On motion of Mr. Stuckey, the report was adopted.

The committee appointed to revise the poultry list reported: Recommending third premium of twenty-five cents for all classes; to add classes for White Minorcas and White Hamburgs. Omit bearded White Polish and Wild turkeys. Add breeding pens for Black Wyandotte, Buff Wyandotte, R. C. White Leghorn, White Minorcas, White and Black Cochins, B. B. R. Game Bantams, White and Black Cochin Bantams; change Black Java Class to White and Black Java. To Silver White and Golden Polish, add the words "bearded and plain." Change Black Rose combed Bantams to read "White and Black." Add to class collections for American, Asiatic and Mediterranean, a second premium of $2.00, and same on turkeys, ducks and geese.

On motion of Mr. Cromley, the report was adopted.

The revision of premium list for farm products, fruits and flowers, was referred to the member in charge and the Secretary.

The Secretary presented a petition from fruit exhibitors requesting that the rules be so changed as to allow the sale of fruit on exhibition, after 3o'clock p. m. of the last day of the fair.

On motion of Mr. Stuckey, the petition was granted, and the rule ordered to be so amended.

The revision of premium list for the Woman's and Art Departments was referred to the Member in Charge and the Secretary.

On motion of Mr. Bordwell, it was agreed that the sum of $4,500, or so much thereof as may be necessary, be appropriated for State Fair printing and advertising.

On motion of Mr. Bordwell, the President, Secretary and Assistant Secretary were constituted a committee on Special Attractions, with power to act.

It was agreed that Tuesday of the fair be designated as "Ladies' Day", on which day ladies shall be admitted free to the grounds and grand stand.

On motion of Mr. Liggett, Friday of the fair was designated "Children's Day," when children of the State, under 13 years of age, shall be admitted to the grounds free.

Mr. Cromley reported that the State had agreed, through the Adjutant General, to furnish two cannons to be placed at the Grant Memorial Building on the State Fair Grounds, and that now it would be advisable to request President McKinley to furnish two more from the National Government for the same purpose, whereupon the Secretary was instructed to write to President McKinley relative to the matter.

Mr. Taylor submitted the following which was adopted:

Resolved, That this Board favors the passage by the 74th General Assembly, of House Bill No. 270, to prevent the introduction and spread of the San Jose scale and other dangerous contagious diseases affecting trees, shrubs, plants and fruits.

The Secretary reported the work accomplished in the inspection and analysis of commercial fertilizers, and in the arrangement and holding of county farmers' institutes throughout the State.

The Assistant Secretary made verbal report covering the work of stock and crop reporting as conducted by the Department.

On motion, the Board adjourned to meet at the call of the President.

Department of Agriculture,
Columbus, Ohio, April 3, 7:30 p. m.

The Board met pursuant to call. Members all present. President Grimes called the meeting to order, when the minutes of the preceding meeting were read and approved.

Members to whom departments had been referred for revision of premiums, reported that revision had been made in accordance with suggestions and recommendations on file and approved.

The Secretary reported, that in accordance with instructions given at a previous meeting, he had written to President McKinley requesting the U. S. Government to furnish two cannons to be placed at the Grant Memorial Building on the Ohio fair grounds, and had received in reply a communication of instructions as to how to proceed to secure the same.

On motion of Mr. Cromley, the communication was ordered to be placed on file.

The Secretary reported that the General Assembly had passed the bill authorizing the Board to issue bonds in the sum of $120,000 for the purpose of securing money with which to erect new and repair old buildings on the State Fair Grounds, and in this connection called attention to the action necessary to be taken at this meeting.

Mr. Ely submitted the following:

WHEREAS, The General Assembly of Ohio, by an act passed March 29, 1900, authorized the Ohio State Board of Agriculture to issue bonds in the sum of one hundred and twenty thousand dollars ($120,000) for the purpose of raising funds to erect new buildings and make other improvements on the State fair grounds, therefore

Resolved, That by and under the authority of the act named, the bonds authorized shall be issued in such denominations as the President and Secretary of the Board may determine, and who shall officially execute and sign the same, the bonds to bear date of May 1st, 1900, and be in accordance with all provisions of the act; and be it further

Resolved, That the Secretary of the Board be and is hereby fully authorized and directed to negotiate and sell the bonds as in his judgment is to the best advantage.

The resolutions were agreed to by a unanimous vote of the Board.

Mr. Liggett submitted the following which was adopted:

Resolved, That such preparatory work as may be deemed necessary on the fair grounds prior to and during the erection of buildings, and also such general repair work as is required, be referred to the Secretary with authority to act.

Mr. Bordwell moved that the President and Secretary and three members, to be appointed, be constituted a building committee; the motion was agreed to.

Adjourned to visit the Fair Grounds at 8:30 a. m., Wednesday, April 4.

April 4, 10:30 a. m.

The Board after a visit to the grounds assembled at the Department of Agriculture and proceeded to the transactions of business.

The President announced the following appointments, the members named with the President and Secretary as per action of the Board at yesterday's session, to constitute the Building Committee—Messrs. Liggett, Cromley and Taylor.

Architect H. A. Linthwaite submitted suggestive building plans for the consideration of the Board.

On motion of Mr. Baldwin, it was agreed that the adoption of plans for new buildings and the location of same, be referred to the Building Committee.

Mr. Taylor submitted the following which, on motion of Mr. Baldwin, was referred to the Secretary:

Resolved, That the State Board of Agriculture be requested to provide a suitable dairy building upon the State Fair Grounds for the exhibition of dairy products; this building to be supplied with a cold storage room for the preservation of dairy products and conveniences for exhibiting dairy machinery and apparatus; and that special premiums be offered for exhibits of dairy products.

The Board took a recess and assembled again at 2:30 p. m.

Mr. Cromley submitted the following which was adopted:

WHEREAS, It will be good economy to utilize the labor and teams of the Board during the working season; and

WHEREAS, There will be much miscellaneous work in preparing and gravelling roads, and other work that can not at this time be anticipated or specified; therefore

Resolved, That the Secretary be authorized and instructed to purchase stone, gravel, tile and other material, and proceed with necessary work to the best advantage and at the least cost.

On motion of Mr. Ely, Mr. H. A. Linthwaite was appointed as architect, with compensation same as under former contracts.

Adjourned to meet at call of the President.

Wednesday, April 4, 3:30 p. m.

The Building Committee was convened by call of the President.

On motion of Mr. Miller, the architect was directed to prepare plans for three buildings, to correspond with central group now on the grounds, center dome building, horse exposition building, addition to power hall, and dining building, each to be separate and distinct. In plans for the dining building, provision to be made for using material in the old Innis residence and in the old cattle amphitheatre.

It was agreed, on motion of Mr. Miller, that when the time arrives for approving plans and letting contracts that a meeting of the Board be called for final action.

On motion of Mr. Liggett, the Committee adjourned to meet on call of the Chairman.

Department of Agriculture,
Columbus, May 9, 10 o'clock a. m.

The Building Committee met pursuant to call. Members all present, except Mr. Taylor. The committee proceeded to the consideration of building plans as submitted by Architect Linthwaite.

Several changes were ordered to be made in the plans as submitted, and the architect directed to prepare detail drawings, for final approval by the Board.

The Committee adjourned to meet at call.

Department of Agriculture,
Columbus, O., May 15, 1900, 8 o'clock p. m.

The Board met pursuant to call, President Grimes in the chair and all members present, except Mr. Liggett.

The minutes of the preceding meeting were read and approved. The Secretary then read the minutes of the meetings of the Building Committee, whereupon the action of the Committee, as expressed in the minutes of its meetings was, on motion of Mr. Stuckey, approved.

The President stated that the plans and specifications for buildings to be erected on the State Fair Grounds were ready for the Board's inspection and action on approval, prior to receiving proposals at 12 o'clock m. tomorrow.

After an inspection of the plans, and explanation by the Secretary, Mr. Ely moved that the plans and specifications be adopted for receiving bids, which motion prevailed by a unanimous vote.

On motion of Mr. Calvert, the Secretary was instructed to inform bidders that the power hall contract must be completed by July 15, 1900, and the dining building, Horticultural and Manufacturers' buildings, by August 15, 1900.

On motion of Mr. Bordwell, it was agreed that all other building contracts that may be entered into shall be fully completed by June 1, 1901.

On motion of Mr. Cromley, the Board adjourned to meet at 10 o'clock a. m. Wednesday, May 16.

Wednesday, May 16.

The Board convened at 10 o'clock a. m. with all members present, and discussed general business until the time arrived for opening the building proposals.

The following were submitted, being opened in the presence of bidders and others.

D. Spencer and Son, Columbus, O.

Horse Exposition Building	$63,356
Addition to Power Hall	4,949

Nichol and Carr, Columbus, O.

Horse Exposition Building	74,220
Addition to Power Hall	3,820

O. P. Wise, Columbus, O.

Horse Exposition Building	58,665
Central Court—Round Towers	8,297
Central Court.—Square Towers	7,965
Auditorium—Arch Truss	14,787
Auditorium—Post Plan	13,572
Horticultural Building	11,850
Manufacturers' Building	11,850
Addition to Power Hall	2,340

Extra Stone Masonry $3.30 per perch.

Extra excavating, 30 cts. per cubic yard.

Wm. E. Cherry.

Horse Exposition Building	$59,987

F. P. Wolfe, Columbus, O.

Horse Exposition Building	58,000
Central Court	10,000
Auditorium—Arch Truss	25,000
Auditorium—Post Plan	23,000
Horticultural Building	17,000
Manufacturers' Building	17,000
Dining Building	5,000
Power Hall, Addition	4,000

If awarded all contracts $1,500 less than aggregate of these figures.

Jno. H. Hina, Columbus, O.

Horse Exposition Building	$58,999
Power Hall, Addition	3,150

Ewers Bros., Columbus, O.

Horse Exposition Building	$59,600
Central Court—Round Towers	7,241
Central Court—Square Towers	6,925
Auditorium—Arch Truss	14,993
Auditorium—Post Plan	12,243
Horticultural Building	12,905
Manufacturers' Building	12,905
Dining Building	5,754
Power Hall, Addition	3,628
Six Kinnear rolling doors added to Central Court	450
Extra Excavating 30 cents per yard.	
Extra Stone Masonry $3.30 per perch.	

A. M. Magrew, Columbus, Ohio.

Dining Building	$5,486
Power Hall, Addition	3,898
(Add $72.00 for Bodine roofing.)	

On motion, a recess was taken until 1:30 p. m., at which hour the Board reassembled and proceeded to the consideration of the building proposals submitted.

Mr. Ely moved that the contract for addition to Power Hall be awarded to Mr. O. P. Wise, of Columbus, conditioned that the amount figured for slate roof be deducted. The motion was agreed to.

On motion of Mr. Ely, the matter of roofing the Power Hall was referred to the Building Committee with power to act.

Mr. Liggett moved that the contracts for Horticultural Building and Manufacturers' Building be awarded to O. P. Wise, Columbus, O. The motion was agreed to.

On motion of Mr. Ely, the Central Court Building, with round towers, and the Auditorium, with post construction, were awarded to Ewers Bros., of Columbus, O.

Mr. Ely moved that the letting of contract for the Horse Exposition Building, and the reletting of any building contracts where parties may fail to qualify under the action taken at this meeting, be referred to the Building Committee, with power to act. The motion was agreed to.

On motion of Mr. Bordwell, the President and Secretary were authorized and directed to execute the necessary contracts for building awards made or to be made under today's action.

On motion, the Board adjourned to meet at the call of the President.

After adjournment, several members went to the Fair Grounds, among them Messrs. Liggett, Cromley and Miller, of the Building Committee.

The Building Committee authorized and directed the Secretary to close up the contracts referred to the Committee, and do the best possible.

Department of Agriculture.
Columbus, O.
Thursday, July 26, 9 o'clock a. m.

The Board met pursuant to call. President Grimes in the chair and all members present.

The minutes of the preceding meeting were read and approved.

The Secretary reported the execution and sale of one hundred and twenty thousand dollars ($120,000) of bonds of the Board, issued in accordance with the act of the General Assembly, passed March 29, 1900, and the further authority and direction of the Board.

The Secretary reported the closing of Building Contracts as per order of the Board and instructions from the Building Committee; also the condition of the work at the present time.

On motion of Mr. Ely, it was agreed to visit the Fair Grounds immediately after dinner to view the progress of work on the several building contracts.

The appointment of awarding Judges was then proceeded with, resulting as follows:

HORSES—CLASSES AND SPEED.

STARTER AND JUDGES.

O. S. Lehman	Dayton.
D. L. Sampson	Cincinnati.
Chas. H. Ganson	Urbana.

TIMERS.

Chas. Johnson	Marathon, O.
Chas. Olmstead	Columbus, O.

CLASS.

A. J. Clark	Cambridge, O.

CATTLE.

Jno. Gosling	Kansas City, Mo.
G. M. Roudebush	Newtonsville, O.
H. DuBois	Vigo, O.
Clay C. Taylor	Lawton Station, N. Y.

SHEEP.

G. S. Thomas	Greenwich, O.
U. C. Brouse	Kendallville, Ind.

Member to appoint one other Judge.

SWINE.

Reuben Gentry	Biltmore, N. C.

POULTRY.

W. M. Barger	Mt. Gilead, O.

FARM PRODUCTS.

GRAIN AND SEEDS.

T. S. Gillalan	Van Wert, O.
A. C. Nothstine	Circleville, O.

VEGETABLES.

B. H. Brown	Oxford, O.

BEES, HONEY AND MAPLE.

G. A. Bartholomew	Huntsburg, O.

FRUITS AND FLOWERS.

Apples and Peaches	D. F. Corwin	Springboro, O.
Pears, Plums and Quinces	I. D. Cartright	Toledo, O.
Grapes	H. E. Van Deman	Parkersburg, W. Va.
Plants and Flowers	Will F. Hall	Zanesville, O.

WOMAN'S DEPARTMENT.

China	Miss W. G. Osborn	Dayton, O.
Canned Goods	Miss Maggie Titus	Langsville, O.
Art Needle Work	Miss Daisy Cherry	Newark, O.
Paintings	Miss Mary Goddard	Marysville, O.
Photography	Miss Mamie Irelan	Glenn Este, O.
Plain Sewing	Sadie Oldham	Cambridge, O.

A recess was taken for dinner and to visit the grounds.

The Board, after viewing the improvements in progress on the grounds, referred to the Secretary the acceptance of the Dining Building about completed, whereupon an adjournment was taken to meet at the call of the President.

Administration Building, State Fair Grounds,
Columbus, Ohio, Aug. 31, 1900.

Board met pursuant to call of President Grimes. Members all present.

The Secretary reported that the C. C. C. & St. L. R. R. desired to request the Board to permit the Company, under its contract with the Board, to discontinue, for this year, the carrying of passengers between the Union Station and the Fair Grounds. Mr. Krotzenberger, City Passenger Agent of the road, and one of the officials from the General Passenger Department, at Cincinnati, were present to explain the request, and were permitted to do so, upon conclusion of which no action was taken.

The matter of arranging for admitting ladies on Tuesday and children on Friday of the fair, was referred to the Treasurer.

The Secretary reported the condition of improvements made and in progress under contracts and special authority.

The Secretary reported that Governor Nash had accepted the invitation of the Board to visit the fair and named Wednesday, September 5, as the day.

On motion of Mr. Cromley, the President was directed to make proper arrangements for meeting the Governor, and escorting him to the grounds.

The Assistant Secretary explained the new arrangements made for conducting the clerical work of the several departments, whereupon the Board adjourned to meet at call.

Administration Building,
State Fair Grounds, Sept. 3.

Board met at call of President.

Several matters pertaining to the enforcement of rules in the departments were referred to the respective members in charge.

The Secretary directed the attention of the Board, with a view of consideration, to the desirability of establishing the administration headquarters in the Central Court Building, and also to the necessity of remodeling or repairing the old Central Main Building.

The suggestions of the Secretary were made matters for future consideration and action.

On motion, the Board adjourned to meet at call.

Department of Agriculture.
Columbus, September 27, 9:30 a. m.

The Board met pursuant to call with President Grimes in the chair and all members present. The minutes of the preceding meeting were read and approved.

Architect Linthwaite reported that the Machinery Hall Extension, the Central Court and the Auditorium were completed according to contracts, and ready for acceptance by the Board.

The report of the architect was concurred in by the President and Secretary.

On motion of Mr. Cromley, it was agreed that the Central Court and Auditorium buildings under contract by Ewers Bros. be accepted, and the Secretary authorized to make settlement.

On motion of Mr. Liggett, the Machinery Hall Extension, under contract by O. P. Wise, was accepted and the Secretary authorized to make settlement.

On motion of Mr. Liggett, it was unanimously agreed on call of the roll, that the Central Court Building be equipped for administration headquarters, as per plans submitted by the architect, and that the Secretary invite proposals for the work.

On motion of Mr. Stuckey, it was agreed that when the proposals are received, they be referred to the Building Committee, with authority to let contract.

Mr. Stuckey moved that the Secretary be authorized and directed to repair and strengthen the old Main Central Building, and make needed repairs to the Machinery Building and Engine House, which motion was unanimously agreed to.

Mr. Bordwell moved that the Building Committee be instructed to make such improvements and changes in the present Horse Barns as to make a sufficient number of them suitable for the accommodation of speed horses; also to arrange the present Administration Building for dining hall purposes, and further to provide an additional fire engine house, to be located south of the Poultry Department. On call of the roll the motion was unanimously agreed to.

The Farmers' Institute Committee submitted the following report, which, on motion of Mr. Liggett, was adopted.

Columbus, O., September 27, 1900.

To the President and members of the Ohio State Board of Agriculture:

Gentlemen: We, the undersigned Farmers' Institute Committee, met at the Department of Agriculture yesterday in response to a call by our Secretary, W. W. Miller, and made a careful examination of all petitions and requests from the various farmers' institute societies of the state for the establishment of institutes to be held under the auspices of the State Board of Agriculture during the coming institute season of 1900-1901. After considering all papers, petitions and records on file with the Secretary, we are unanimously agreed to recommend that farmers' institutes be held under the management of the Board, at the places indicated below, making two hundred and sixty (260) regular institutes to be held during the season, specific dates to be fixed by Secretary Miller.

COUNTY—TOWN.

ADAMS—
- Peebles,
- Cherryfork.

ALLEN—
- Delphos,
- Spencerville,
- Bluffton,
- Harrod.

COUNTY—TOWN.

ASHLAND—
- Loudonville,
- Savannah.

ASHTABULA—
- Andover,
- Ashtabula,
- Pierpont,
- Geneva.

COUNTY—TOWN.

ATHENS—
- Coolville,
- Albany,
- Amesville,
- Athens.

AUGLAIZE—
- Cridersville,
- St. Johns,
- Kossuth.

County—Town.

BELMONT—
Colerain,
Barnesville,
Belmont.

BROWN—
Feesburg,
Union Plains,
Fayetteville,

BUTLER—
Monroe,
Collinsville,
Ross,
Oxford.

CARROLL—
Malvern,
Carrollton.

CHAMPAIGN—
Cable,
Westville,
Rosewood.

CLARK—
Vienna X-Roads,
New Carlisle,
So. Charleston,
Tremont City.

CLERMONT—
Amelia,
Lerado,
Williamsburg,
Moscow.

CLINTON—
New Vienna,
Blanchester.

COLUMBIANA—
Lisbon,
Damascus,
East Fairfield.

COSHOCTON—
Plainfield,
New Guilford,
Keene.

CRAWFORD—
N. Washington,
Bucyrus,
Galion.

CUYAHOGA—
Chagrin Falls,
Dover.
Euclid,
Strongsville.

County—Town.

DARKE—
Greenville,
Arcanum,
Versailles,
New Madison.

DEFIANCE—
Defiance,
Hicksville.
Ney.

DELAWARE—
Sunbury,
Delaware.

ERIE—
Berlin Heights,
Castalia,
Milan.

FAIRFIELD—
Baltimore,
Amanda,
Pleasantville,
Carroll.

FAYETTE—
Goodhope,
Bloomingburg,
N. Martinsburg.

FRANKLIN—
Hilliard,
Westerville,
Canal Winchester.
Pleasant Corners.

FULTON—
Delta,
Wauseon,
Fayette.

GALLIA—
Mills Station,
Thivener.

GEAUGA—
Chardon.

GREENE—
Cedarvile,
Xenia,
Jamestown.

GUERNSEY—
Cambridge,
Quaker City.

HAMILTON—
Cleves,
Newtown.
Blueash,
Mt. Healthy.

County—Town.

HANCOCK—
Arcadia,
Mt. Blanchard,
McComb,
Benton Ridge.

HARDIN—
Ada,
Forest.

HARRISON—
Freeport,
Cadiz.

HENRY—
Ridgeville Corners,
Grelton,
Deshler.

HIGHLAND—
Rainsboro,
Mowrystown,
Hillsboro.

HOCKING—
Laurelville,
Logan.

HOLMES—
Killbuck,
Holmesville.

HURON—
Greenwich,
New London,
Wakeman.

JACKSON—
Jackson,
Camba.

JEFFERSON—
Smithfield,
Mt. Pleasant,
Richmond.

KNOX—
Fredericktown,
Esto,
Mt. Vernon.

LAKE—
Painesville.
Perry.

LAWRENCE—
Windsor Chapel,
Rockwood.

LICKING—
Brownsville,
Utica,
Jersey,
Granville.

COUNTY—TOWN.

LOGAN—
DeGraff,
Bellefontaine,
West Mansfield.

LORAIN—
Wellington,
No. Ridgeville,
Copopa.

LUCAS—
Sylvania,
Waterville,
Holland,
Java.

MADISON—
London,
Plain City.

MAHONING—
Berlin Center,
Canfield,
North Lima,
Rosemont.

MARION—
Caledonia,
Marion,
Waldo.

MEDINA—
Chatham,
Malletcreek,
Poe

MEIGS—
Dyesville,
Chester,
Racine.

MERCER—
Fort Recovery,
Neptune,
Wabash.

MIAMI—
W. Charleston,
Covington,
West Milton,
Piqua.

MONROE—
Beallsville,
Woodsfield.

MONTGOMERY—
Germantown,
Centerville,
Brookville,
Vandalia.

MORGAN—
Chesterhill,
Triadelphia.

COUNTY—TOWN.

MORROW—
Sparta,
Cardington.

MUSKINGUM—
Chandlersville,
White Cottage,
Norwich,
Dresden.

NOBLE—
Belle Valley,
Summerfield,

OTTAWA—
Port Clinton,
Elmore.

PAULDING—
Antwerp,
Oakwood,
Payne.

PERRY—
Rehoboth,
Mt. Perry,
Sayre.

PICKAWAY—
Williamsport,
Ashville,
Tarlton.

PIKE—
Idaho,
Piketon.

PORTAGE—
Mantua Station,
Raldolph,
Edinburg.

PREBLE—
Camden,
Eaton,
Eldorado.

PUTNAM—
Continental,
Rimer,
Leipsic.

RICHLAND—
Adario,
Butler,
Lucas,
Lexington.

ROSS—
Frankfort,
Kingston,
Bainbridge,
South Salem.

COUNTY—TOWN.

SANDUSKY—
Fremont,
Clyde.

SCIOTO—
Mt. Joy,
Haverhill,
Scioto.

SENECA—
Bloomville,
Tiffin,
Greenspring.

SHELBY—
Jackson Center,
Sidney.

STARK—
Alliance,
New Berlin,
Beach City,
Marlboro.

SUMMIT—
Inland,
No. Springfield,
Osborn Corners.

TRUMBULL—
Newton Falls,
Fowler,
Vernon,
Howland.

TUSCARAWAS—
Shanesville,
Pt. Washington,
Bolivar,
Canal Dover.

UNION—
Richwood,
Marysville,

VAN WERT—
Van Wert,
Convoy,
Ohio City.

VINTON—
Wilkesville,
New Plymouth.

WARREN—
Morrow,
Franklin,
Waynesville.

WASHINGTON—
Lower Salem,
Bartlett,
Watertown.

COUNTY—TOWN.

WAYNE—
Creston,
Wooster,
Lattasburg,
Shreve.

COUNTY—TOWN.

WILLIAMS—
Bryan,
Montpelier.

WOOD—
Prairie Depot,
Bowling Green,

COUNTY—TOWN.

Bloomdale,
Grand Rapids.

WYANDOT—
Up. Sandusky,
Nevada.

Secretary Miller presented your committee with a list of farmers' institute lecturers who have served the Board in former years, and a list of persons desiring to be employed in the lecture work of the Board, and, after careful examination of reports from local institute societies and all applications, recommendations and papers on file with the Secretary, relative to the lecture work, we would recommend the appointment of the following named lecturers for the ensuing institute season of 1900-1901.

NAME.	PLACE.	COUNTY.
F. L. Allen	Kinsman	Trumbull.
John Begg	Columbus Grove	Putnam.
O. E. Bradfute	Cedarville	Greene.
C. F. Chapman	Huntington	Lorain.
W. N. Cowden	Quaker City	Guernsey.
Robert L. Dean	Jamestown	Greene.
J. W. Decker	Columbus	Franklin.
F. A. Derthick	Mantua	Portage.
J. Al Dobie	Gutman	Auglaize.
Remick W. Dunlap	Kingston	Ross.
S. H. Ellis	Waynesville	Warren.
W. G. Farnsworth	Waterville	Lucas.
W. W. Farnsworth	Waterville	Lucas.
C. M. Freeman	Rex	Miami.
W. D. Gibbs	Columbus	Franklin.
John Gould	Aurora Station	Portage.
G. C. Housekeeper	Bowling Green	Wood.
W. A. Kellerman	Columbus	Franklin.
Henry S. Kelley	Geneva	Ashtabula.
T. C. Laylin	Norwalk	Huron.
Wm. R. Lazenby	Columbus	Franklin.
J. A. Lehmann	Savannah	Ashland.
H. P. Miller	Sunbury	Delaware.
T. J. Miller	Leipsic	Putnam.
Cary W. Montgomery	Newark	Licking.
C. L. Reamer	Coshocton	Coshocton.
Lowell Roudebush	Owensville	Clermont.
Geo. E. Scott	Mt. Pleasant	Jefferson.
John L. Shawrer	Bellefontaine	Logan.
E. P. Snyder	Peru	Huron.
M. C. Thomas	Mingo	Champaign.
S. H. Todd	Wakeman	Huron.
E. Trumbo	Cranberry	Allen.
C. R. Wagner	Arlington	Hancock.
R. H. Wallace	Chillicothe	Ross.
A. L. White	Norwich	Muskingum.
David S. White	Columbus	Franklin.
R. Y. White	Chandlersville	Muskingum.
C. G. Williams	Gustavus	Trumbull.

Respectfully submitted,

J. S. STUCKEY,
L. G. ELY.
B. P. BALDWIN,
} *Committee.*

On motion of Mr. Bordwell, it was agreed that the building erected for an auditorium be dedicated to and arranged for exhibition purposes.

Mr. Baldwin moved that the Building Committee be authorized and directed to prepare a suitable building or space for a model, up-to-date dairy exhibit. On roll call, the motion was agreed to.

On motion of Mr. Baldwin, the matter of portable stalls, fences and partitions in live stock buildings, was referred to the Building Committee.

The providing of suitable check room and refreshment booths was referred to the Assistant Secretary, on motion of Mr. Baldwin.

Mr. Cromley submitted the following premable and resolutions which were unanimously adopted:

WHEREAS, An unauthorized report is current that this Board has agreed to extend the time of the Ohio State Fair in 1901, which report being prompted, no doubt, by the oft-expressed desire of Columbus business men for a longer annual state fair period, and

WHEREAS, If an extension of time should be made, it could only be done at a largely increased expense to this Board and with the earnest cooperation and support of the business interests and the press of Columbus and further aided by the numerous railway lines entering the city. therefore

Resolved, That if the City of Columbus desires a longer period of time for the annual exposition and will cooperate with this Board by making exhibits representing her various lines of merchandise and manufactures, worthy an industrial exposition of longer duration than the annual State fair, and exert her business influence to secure from the railways rates and arrangements that will encourage extensive patronage from all points throughout the state; and will further contribute to the enterprise the sum of ten thousand ($10,000) dollars, this Board will agree upon two weeks for the holding of the State Fair and Industrial Exposition of 1901.

Resolved, That if this proposition meets with favor on the part of the City of Columbus that the sum of money named shall be paid into the Treasury of the State Board of Agriculture or fully guaranteed and secured to said Board, on or before the first day of December, next.

Resolved, That this action be presented to the City through its representative body, the Columbus Board of Trade, to the Secretary of which the Secretary of this Board is hereby directed to send official copy.

President Grimes, Mr. Cromley and the Secretaries were constituted a committee to confer with the Board of Trade relative to the propositions embodied in the resolutions, and with power to act.

The Assistant Secretary submitted a financial statement covering the transactions of the Board up to September 20.

The Secretary presented the original cost of electric light and the annual and average cost of maintaining the same, whereupon Mr. Stuckey moved that the Secretary be directed to sell the plant, which motion prevailed.

Recess until 2 o'clock p. m., at which hour the Board reassembled with Treasurer Ely excused, on account of illness.

On motion, the President was directed to appoint five delegates, himself to be one, and five alternates to the convention of American Association of Fairs and Expositions, to be held in Chicago, Ill., December 6 and 7, 1901.

Adjourned to meet at call of the President.

State Fair Grounds,
Columbus, October 5, 9 o'clock a. m.

The Building Committee met on the grounds to view the work referred to it by the Board.

Members of the Committee all present. It was agreed that the Engine House ordered by the Board be located south of the Poultry Buildings, and the construction referred to the Secretary.

Agreed, that the matter of arranging the old Administration Building for dining room purposes be referred to the Secretary.

After viewing the contract work in progress and the horse barns to be repaired for speed horses, the Committee returned to the Department of Agriculture in the city and proceeded to the transaction of business.

Mr. Taylor moved that eleven of the present horse barns be preserved, to be arranged for the accommodation of speed horses, and that the matter of repairing be referred to the Secretary. Motion prevailed.

The Secretary was directed to appropriate two of the horse barns for a hay barn and one for a check room, and have them removed to a suitable location for each purpose; also to take a fourth barn for the Engine House. The remaining horse barns not appropriated for speed horses, the Secretary was authorized to sell to the best advantage.

It was agreed that the preparation of a dairy department in one of the new brick buildings be referred to Mr. Taylor and the Secretary, with power to act.

On motion, the Committee adjourned to meet October 18, at 10 o'clock a. m.

Department of Agriculture.
Columbus, Oct. 18, 10 o'clock a. m.

The Building Committee met pursuant to adjournment. Present, Messrs. Liggett, Taylor, Miller and Chairman Grimes. The minutes of the preceding meeting were read and approved.

Mr. Liggett moved that the hay barn ordered at a previous meeting be located west of the present barn and tool house, in the old orchard.

On roll call the motion was unanimously agreed to.

Agreeable to the advertisements inviting bids for constructing Administration Headquarters, the following were submitted:

Ewers Bros.	$3,748
E. E. Beckett	4,842
Nichol & Carr	5,600
F. P. Wolfe	4,000

The Secretary explained to the Committee that in inviting proposals he had taken advantage of the opportunity to also get bids for the work of re-enforcing or rebuilding the old Central Main Building, which work had been referred to him, and requested the Committee to take under consideration the bids for this work. On motion of Mr. Taylor, the request of the Secretary was granted.

The following bids were submitted for re-enforcing old Central Main Building:

O. P. Wise	$7,300
Ewers Bros.	4,825
For rebuilding frame and roof work:	
Ewers Bros.	6,100
Nichol & Carr	7,800
F. P. Wolfe	7,500

Mr. Liggett moved that the proposal of $3,748 submitted by Ewers Bros. for constructing Administration quarters as per plans and specifications, be accepted, and the Secretary be directed to enter into contract for the Board, the work to be completed on or before May 1, 1901. On roll call, the motion was unanimously agreed to.

The matter of contract for re-enforcing or rebuilding old Central Main Building was referred to the Secretary to confer with Ewers Bros. and if they would agree to rebuild, as per plans and specifications, for a sum that would aggregate $9,500 for both contracts, to close. The Secretary reported that Ewers Bros. would so agree, whereupon he was directed to contract.

The Secretary was directed to provide the necessary stall partitions, railings, etc., in live stock buildings referred to the Building Committee by the Board.

On motion, the Committee adjourned to meet on call.

Sherman House,
Chicago, Ill., December 5, 1900, 10 o'clock a. m.

The Board met on call of President Grimes, with all members present, except Mr. Ely, who was unable to be present on account of illness.

The minutes of the last meeting of the Board were read and approved.

The minutes of the meeting of the Building Committee, held October 5, were read, and on motion of Mr. Stuckey, the acts of the Committee were unanimously approved.

The minutes of the Building Committee, held October 18, were read, and on motion of Mr. Baldwin, the work of the Committee was approved by a unanimous vote of the Board.

The Special Committee appointed for the purpose of conferring with the Columbus Board of Trade in reference to the holding of a two weeks' fair in 1901 made report of interviews held with a special committee of said Board and gave an account of progress made, which report was approved. On motion of Mr. Stuckey, it was unanimously agreed, that the Board shall hold a two weeks' fair in 1901, if the citizens of Columbus, through the Board of Trade, shall make final satisfactory arrangements as promised by securing a guarantee fund of ten thousand dollars or more.

On motion of Mr. Baldwin, the Secretary was directed to remove the express office building on the State Fair Grounds about twenty-five feet north of its present location, so that the north front shall be on a line with the north line of the check room building, recently located west of the old Administration Building.

Mr. Bordwell moved that the delegates from this Board to the annual convention of the American Association of Fairs and Expositions, to be held in Chicago December 6 and 7, be instructed to secure dates for the Ohio State Fair for 1901, for the two weeks beginning September 2, if possible. Mr. Green moved to amend by naming August 26 as the beginning date, instead of September 2. The amendment was agreed to, whereupon the orginal motion, as amended, prevailed.

On motion of Mr. Cromley, the Board unanimously commended the services of J. W. Fleming, as Secretary of the American Association of Fairs and Expositions, and urged him to continue his present official connection with the Association, should the Association express a desire for him to do so.

On motion of Mr. Stuckey, the Board extended a unanimous vote of sympathy to Hon. L. G. Ely, Treasurer of the Board, on account of his illness, and expressed the hope that he would speedily recover his usual good health, and directing the Secretary to communicate this action to him.

At 3 o'clock p. m. the Board adjourned to meet at the call of the President.

Department of Agriculture.
Columbus, Jan. 15, 1901, 10 o'clock a. m.

The Board met pursuant to call, President Grimes in the chair and all members present.

The minutes of the preceding meeting were read and approved.

The Ohio State Grange requested that the Board appoint a committee to act with a committee from the Grange to wait upon the Governor in the interest of the re-election of Director C. E. Thorne of the Ohio Agricultural Experiment Station.

The request was granted, whereupon the President announced that the full Board would act as such committee.

Mr. Ely submitted the following and moved its adoption:

> *Resolved*, That whereas Director C. E. Thorne, of the Ohio Agricultural Experiment Station has, in the execution of his work as such Director given satisfaction to the farmers of Ohio, and performed earnest and valuable services in the great agricultural industry of the state, we earnestly urge and respectfully request that he be reappointed and continued as such Director, and to this end the Governor of Ohio is petitioned to exercise his influence.

The resolution was adopted.

The Secretary reported the condition of affairs relative to attorneys in consultation regarding the Pain's Fire Works cases, informing the Board that his son, Amos C. Miller, of Chicago, made no charge for service rendered, and that a claim of one hundred dollars by Mr. Bennett, connected with the State Attorney General's Department, had been withdrawn.

Mr. Stuckey moved that a vote of thanks be extended to Mr. Amos C. Miller for valuable service so generously rendered this Board. The motion prevailed by a unanimous vote.

The Board visited the fair grounds to view the new Horse Exhibit Building, preparatory to accepting the same from the contractor, Mr. F. P. Wolfe. After thorough inspection of the building, Mr. Liggett moved that it be accepted, which motion prevailed.

After examining other buildings and improvements in progress on the grounds, the Board returned to the Department and continued the transaction of business.

The Secretary reported, that in view of the question that had frequently arisen as to the right of members to vote in the annual meeting, he had requested the Attorney General, the legal advisor of the Board, to give his opinion in the matter, receiving the following reply:

State of Ohio,
Office of Attorney General,
Columbus, O., Jan. 8, 1901.

W. W. Miller,
Secretary Ohio State Board of Agriculture,
Columbus, O.

Dear Sir: Your letter of Jan. 7 at hand and contents noted. You inquire whether the members of the State Board of Agriculture may at the annual meetings participate in the election of members of that Board.

Section 3692, R. S., provides for an annual meeting to be held on the first Thursday after the second Monday in January each year, at which time two members of the State Board of Agriculture shall be elected to serve five years. This section also provides that at this meeting the president of each county agricultural society or such authorized delegate therefrom, "Shall for the time being be ex-officio members of the State Board of Agriculture, for purposes of deliberation and consultation, etc."

It is thus seen that the presidents of the different county agricultural societies are, at these meetings only, members of the State Board of Agriculture and entitled to take part in its deliberations. This section in no manner disqualifies the ten members who constitute the regular board from taking part in the deliberations of these annual meetings. That being the state of the law, it is the privilege and the duty of these ten members constituting the regular board, to take part in all the deliberations of these annual meetings, including the election of new members.

Very truly,
J. M. Sheets, Atty.-General.

On motion of Mr. Bordwell, it was agreed that the members exercise their prerogative and vote in the annual meeting to be held the 17th instant.

The Secretary, from the committee appointed to confer and, under certain conditions, contract with the Columbus Board of Trade for the holding of a two weeks' fair in 1901, reported that said Board of Trade had presented notes from the business men of Columbus, aggregating something over ten thousand dollars, as a guarantee to the State Board of Agriculture against financial loss in the holding of a two weeks' fair.

The proposal made by the committee of this Board having been met, and the following agreement having been entered into, was, on motion of Mr. Bordwell, approved by unanimous vote of the Board.

WHEREAS, The citizens of Columbus have secured to the Ohio State Board of Agriculture the sum of ten thousand dollars ($10,000) by notes deposited with the Hayden-Clinton National Bank, upon which credit in the sum named, will on demand by said Board be placed to its account at said Bank, the said State Board of Agriculture, as managers of the Ohio State Fair, will extend the time of the annual exhibition for 1901 to two weeks, and not hold night exhibitions.

Now, therefore, it is hereby mutually agreed by and between the officers of the Columbus Board of Trade, as representing the Columbus citizens, who insure the payment as above recited, and the Ohio State Board of Agriculture, as managers of the Ohio State Fair, that if the exhibition of 1901 shall result in receipts above all legitimate ordinary expenditures, in the sum of five thousand dollars ($5,000), or more, as per statement by the said Board, then all securities or moneys collected from Columbus citizens shall be returned to the Secretary of the Board of Trade for the benefit of such citizens.

If the net profits of the Fair shall be less than five thousand dollars ($5,000), or if there be a loss, then the ten thousand dollars ($10,000) will be used by said Board, to the extent of such proportion as is necessary to make good the loss, not exceeding ten thousand dollars, or a profit not exceeding five thousand dollars, and the balance, if any, after making good all non-collectable notes given as above, shall be returned to the Secretary of the Board of Trade, and by him prorated among the citizens contributing to the fund.

Witness our hands and the seal of the said Board of Agriculture, this thirtieth day of November, A. D. 1900.

Jos. H. Outhwaite, President.
John Y. Bassell, Secretary.
The Ohio State Board of Agriculture,
By W. W. Miller, Secretary.

Mr. Stuckey moved that August 26 to September 7, the dates recommended for the Ohio State Fair of 1901, by the American Association of Fairs and Expositions, be ratified and announced. The motion prevailed.

Mr. Ely proposed for consideration a change in the matter of Treasurer, suggesting that the term be for a longer period than one year and that he may be a person not a member of the Board.

On motion of Mr. Liggett, consideration of the matter was postponed until a future meeting.

The Secretary was instructed to provide a suitable place for an emergency hospital during the annual fairs.

On motion of Mr. Bordwell, it was agreed that twelve of the old horse barns be retained and prepared for speed horses, instead of eleven as ordered at a former meeting.

The Assistant Secretary presented the financial statement of the Board to December 31, 1900, also the report of the committee appointed to examine and audit the books and accounts, which statement and report were approved and ordered to be read in the annual meeting.

On motion, the Board adjourned to meet at the call of the President.

Department of Agriculture,
Columbus, January 17, 1901, 6 o'clock p. m.

The Board met at the close of the annual meeting, held in the Senate Chamber. President Grimes directed a call of the roll, when all members were found to be present.

The President stated that this was the final meeting of the old Board and was called to transact any unfinished business that might require attention, preparatory to the organization of the Board for 1901. He took occasion as the retiring President and member to return thanks for the kind treatment accorded him during his term as president, and expressed the hope, that though not a member, he would be able to continue his interest in advancing the work of the Board.

Mr. Ely, a retiring member, also expressed his kindly feeling for the individual members of the Board and his very high appreciation of their friendship and society, and said that in the future success of the Board he should always rejoice.

Messrs. Green, Baldwin, Stuckey and Taylor expressed appreciation of the labors of the retiring members with wishes for their continued influence in promoting the work in which the Board is engaged.

There being no further business to present, the Board on motion of Mr. Cromley, adjourned *sine die*.

J. W. Fleming,	W. W. Miller,
Assistant Secretary.	Secretary.

CROP AND LIVE STOCK STATISTICS

AS ESTIMATED BY THE

Ohio Department of Agriculture,

From Returns Received from its Corps of Regular Township Crop Correspondents During the Season of 1900.

The following crop reports, with comments made at the time of publication, are selected from the regular monthlies issued by the Department, being those in which account was taken of the acreage and estimated total production of the principal crops of the state, the information being published and sent to farmers and the agricultural and news press within a few days after the information was received and results arrived at, so as to be of benefit in the distribution of the crops and in determining probable requirements for succeeding crops. The monthly reports are based upon estimates returned to the Department during the growing and harvesting seasons by the large corps of correspondents who are practical, intelligent and observing farmers, and their estimates can be relied upon as approximately correct.

The monthly crop reporting system, under the direction of the Department of Agriculture, is for the purpose of furnishing to the producer and to the general public prompt information bearing on the current year's crops and that may be of value in determining under-production or over-production of any of the principal crops of the state. The Department has no interest except to submit the facts and figures as returned by the correspondents. It does not attempt to predict possible rise or fall in prices, or advise the disposition of crops or live stock.

The crop statistics as collected by township assessors and returned to the county auditors can not be given to the people through the annual publications until late in the year succeeding the one in which the crop was grown, and hence, while valuable as a matter of record, can not and do not meet the purpose filled by the monthly reports made and promptly published by the Department of Agriculture. The law relating to agricultural statistics returned by township assessors now requires county auditors to return to the Department of Agriculture within thirty days after the township assessors make their reports to the county auditor. Under this provision the figures will be given to the public in the first monthly report succeeding their compilation for the state and will afterwards be published in the Annual State Agricultural Report.

Following these monthly crop reports will be found a table showing wheat and corn production from 1850 to 1900, inclusive, together with the range of prices, the average prices for each year and the same by series of ten years each.

Following these tables will be found tables showing the number of live stock for the years 1899-1900 as returned to the Auditor of State.

The collection, tabulation, computation of results, publication and distribution of the Monthly Crop Reports involves a great deal of careful work on the part of the Department and some expense to the State, but the work is of great importance to the agricultural interests and to the people in general, and the expense involved is fully warranted.

It is the aim of the Board to have a reliable correspondent in each township of the State that the fullest possible monthly crop and stock returns may be received, on which to base average estimates for the county and for the State, thus making the monthly reports reliable, which would not be the case if reports were based on conditions as given in certain few localities, because there is very rarely a season wherein the crops are uniform throughout the State, and therefore unless estimates are based on conditions throughout all the townships, taking into consideration the good, fair and bad prospects, as the case may be, reports can not be reliable. The Department has therefore taken every precaution and adopted every means to make its Monthly Crop and Stock Reports reliable and of value to the public.

OFFICIAL REPORT

OF THE

Ohio Department of Agriculture

ON THE

Area and Condition of Crops and Losses to Live Stock, May 1, 1900.

The following report represents the comparative percentage estimates of the items named as averaged for each county and for the State, from the returns received by the Department from its regular corps of township crop correspondents, nearly every township of the State being represented:

WHEAT—Condition compared with an average	41	percent
SPRING BARLEY—Area sown compared with last year	106	"
WINTER BARLEY—Condition compared with an average	58	"
BARLEY AREA—Sown last fall for harvest of 1900	28	"
" Sown this spring for harvest of 1900	72	"
RYE—Condition compared with an average	68	"
OATS—Area sown in 1899	905,703	acres.
" Area sown this year compared with 1899	115	percent
" Estimated area for harvest of 1900	992,215	acres
WHEAT—Damage by Hessian fly	35	percent
" Damage by other insects	5	"
CLOVER—Average date of sowing	March 23.	
" Area sown this year compared with 1899	90	percent
HORSES—Losses during winter and spring	2	"
CATTLE—Losses during winter and spring	2	"
SHEEP—Losses during winter and spring	3	"
HOGS—Losses during winter and spring	3	"
BERRIES—Prospect compared with an average	84	"

A summing up of wheat conditions or prospect for the State shows a lower condition than that reported last month, the estimated average being 41 percent. Throughout the central, western and northern portions of the State the figures given by correspondents are in many cases considerably reduced as compared with the returns of last month, while in 20 of the southern and eastern counties, correspondents report improvement over last month. In some of these the improvement is slight, in others it is quite marked, but, on the other hand, counties in the central, western and northern portions of the State report more than a corresponding reduction as compared with last month, so that the general result is a fall of five points.

Present prospect would indicate for the coming harvest a crop of only about 16,000,000, to 18,000,000 of bushels. In many localities a return of seed is not even expected. Throughout the State thousands of acres have been and are being plowed up for other crops. This will result in a marked increase in oats and corn area as compared with an average area for these crops.

The area of oats as estimated for this report shows an increase of 86,000 acres as compared with last year. In some counties the area has been doubled, showing that a very large portion of the plowed up wheat has already gone into oats.

The present wheat prospect indicates the lowest crop since 1896, when the total product was only about 17,000,000 bushels, and the average per acre but 8 1-2 bushels. In the past 10 years Ohio has produced six wheat crops above 40,000,000 bushels each, one of these crops, that of 1894, reaching 50,000,000 bushels and averaged for the State 20 bushels per acre. This statement shows the capability of the State for wheat production and illustrates the magnitude of what will be this year's failure. As shown in former reports, and as is a generally well known fact, the primary causes of wheat failure are the work of the Hessian fly followed by winter freezing. No part of the State was entirely exempt from damage.

Reports are quite general that clover, of last year's seeding, was winter killed to an extent quite noticeable. Some correspondents observe that almost the entire seeding has been destroyed.

Live stock, as a rule, wintered well, coming through the season with no unusual losses and fairly good in flesh. A few correspondents note the loss of spring pigs, but can assign no cause.

Spring plowing is quite well advanced, although there is a good amount yet to do for corn.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE AREA AND CONDITION OF CROPS AND LOSSES OF LIVE STOCK MAY 1, 1900, BY COUNTIES.

Counties.	Wheat.	Spring Barley.	Winter Barley.	Barley.	
	Condition compared with an average.	Area sown compared with last year.	Condition compared with an average.	Area for harvest sown last fall.	Area for harvest sown this spring.
	Percent	Percent	Percent	Percent	Percent
Adams	45	....	....	....	....
Allen	23	100	....	49	51
Ashland	50	70	67	45	55
Ashtabula	44	100	....	70	30
Athens	74	....	....	....	....
Auglaize	20	125	....	20	80
Belmont	49	100	....	50	50
Brown	63	....	....	....	....
Butler	30	87	30	82	18
Carroll	42	....	....	....	....
Champaign	30	....	....	....	....
Clark	24	100	....	....	100
Clermont	52	....	....	100	....
Clinton	17	100	25	75	25
Columbiana	67	63	....	....	100
Coshocton	38	....	....	....	....
Crawford	46	92	40	37	63
Cuyahoga	45	....	....	....	....
Darke	10	96	41	24	76
Defiance	38	91	100	....	100
Delaware	34	80	40	13	87
Erie	33	67	....	31	69
Fairfield	22	....	....	....	....
Fayette	18	200	....	....	100
Franklin	31	100	....	....	100
Fulton	32	108	....	....	100
Gallia	72	....	....	....	....
Geauga	41	100	50	20	80
Greene	82	100	60	60	40
Guernsey	46	....	....	....	....
Hamilton	38	....	....	....	....
Hancock	18	171	....	....	100
Hardin	44	200	....	....	100
Harrison	51	....	....	....	....
Henry	42	100	90	....	100
Highland	22	150	....	50	50
Hocking	60	....	....	....	....
Holmes	43	100	73	13	87
Huron	34	75	50	20	80
Jackson	63	....	....	....	....
Jefferson	47	70	60	....	....
Knox	50	65	60	50	50
Lake	24	....	....	....	....
Lawrence	72	78	72	58	42
Licking	41	....	....	....	....
Logan	18	100	20	40	60
Lorain	50	....	....	....	....
Lucas	60	95	75	8	92
Madison	15	108	....	....	100
Mahoning	56	....	....	....	....
Marion	85	....	....	....	....
Medina	44	110	....	....	100
Meigs	67	....	....	100	....
Mercer	18	267	90	....	100
Miami	18	183	58	39	61
Monroe	73	....	....	....	....
Montgomery	85	80	40	60	40
Morgan	58	....	....	....	....
Morrow	44	....	....	....	....
Muskingum	48	....	....	....	....
Noble	71	....	....	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.	Spring Barley.	Winter Barley.	Barley.	
	Condition compared with an average.	Area sown compared with last year.	Condition compared with an average.	Area for harvest sown last fall.	Area for harvest sown this spring.
	Percent	Percent	Percent	Percent	Percent
Ottawa	38	75			100
Paulding	60	82	88	25	75
Perry	39			100	
Pickaway	29	100			
Pike	57				
Portage	53				
Preble	19				
Putnam	25	140		5	95
Richland	44	100		10	90
Ross	39	70		60	40
Sandusky	20	78			100
Scioto	80				
Seneca	26	125			100
Shelby	15	100	45	43	57
Stark	64	100			100
Summit	50				
Trumbull	43				
Tuscarawas	31	100			100
Union	31	150			100
Van Wert	27	131	35	16	84
Vinton	62				
Warren	30				
Washington	69				
Wayne	58				
Williams	25	82	72	8	92
Wood	86	88	55	24	76
Wyandot	33	95	60	60	40
Average percent	41	106	58	28	72

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Rye.	Oats.		
	Condition compared with an average.	Area sown in 1899.	Area sown this year compared with 1899.	Estimated area for the harvest of 1900.
	Percent	Acres	Percent	Acres
Adams	55	1,110	92	1,021
Allen	47	7,558	134	10,128
Ashland	82	15,884	98	15,566
Ashtabula	57	16,046	100	16,046
Athens	90	914	93	850
Auglaize	70	9,856	140	13,798
Belmont	64	5,204	101	5,256
Brown	91	3,999	95	3,799
Butler	69	4,000	132	5,280
Carroll	65	12,189	93	11,336
Champaign	60	5,773	150	8,660
Clark	83	3,738	178	6,654
Clermont	79	4,899	97	4,752
Clinton	60	1,331	173	2,303
Columbiana	71	18,778	99	18,590
Coshocton	50	7,578	100	7,578
Crawford	61	20,174	97	19,569
Cuyahoga	72	14,305	90	12.875
Darke	52	14,238	167	23,777
Defiance	86	22.297	99	22,074
Delaware	59	10,227	104	10,636
Erie	77	11,139	115	12,810
Fairfield	64	1,908	138	2,633
Fayette	66	505	215	1,086
Franklin	77	7.502	155	11,628
Fulton	88	26.695	95	25,360
Gallia	79	1,038	94	976
Geauga	58	12,886	96	12,371
Greene	83	2,384	120	2,861
Guernsey	45	5,361	94	5,039
Hamilton	50	1,464	118	1,728
Hancock	38	10,432	143	14,918
Hardin	61	8,427	140	11,798
Harrison	60	4,833	100	4,833
Henry	87	19,692	91	17,865
Highland	53	531	149	791
Hocking	74	869	92	799
Holmes	69	15,001	91	13,651
Huron	83	24,866	107	26,607
Jackson	75	484	93	450
Jefferson	73	9,979	96	9,580
Knox	67	9,501	97	9.216
Lake	67	6,054	105	6,357
Lawrence	74	2,089	93	1,943
Licking	67	9,315	98	9,129
Logan	53	6,148	149	9,161
Lorain	64	20,667	103	21,287
Lucas	98	15,684	97	15,203
Madison	57	4,529	115	5,208
Mahoning	75	15.770	100	15.770
Marion	61	13,805	96	13,253
Medina	73	19,353	100	19,353
Meigs	105	1,642	96	1,576
Mercer	72	17,720	250	44,300
Miami	70	8,624	151	13,022
Monroe	80	4,770	93	4,436
Montgomery	100	7,742	100	7.742
Morgan	61	1,368	97	1,327
Morrow	70	14,408	102	14.696
Muskingum	83	3,737	99	3,700
Noble	58	2,906	91	2,644
Ottawa	55	10,696	103	11,017

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Rye.	Oats.		
	Condition compared with an average.	Area sown in 1899.	Area sown this year compared with 1899.	Estimated area for the harvest of 1900.
	Percent	Acres	Percent	Acres
Paulding	82	19,182	98	18,798
Perry	67	741	102	756
Pickaway	75	340	263	894
Pike	40	340	99	337
Portage	64	18,351	103	18,902
Preble	80	5,623	217	12,202
Putnam	85	6,120	139	8,507
Richland	50	22,295	96	21,403
Ross	70	336	120	403
Sandusky	98	14,029	121	16,975
Scioto	....	2,176	93	2,024
Seneca	68	18,254	113	20,627
Shelby	77	18,485	134	24,770
Stark	73	36,191	96	34,643
Summit	82	16,666	94	15,666
Trumbull	58	19,221	106	20,374
Tuscarawas	73	17,957	102	18,316
Union	50	7,691	112	8,614
Van Wert	58	12,377	116	14,357
Vinton	77	716	101	723
Warren	80	3,717	108	4,014
Washington	75	6,000	99	5,940
Wayne	75	24,758	99	24,510
Williams	70	26,198	92	24,102
Wood	57	36,589	96	35,125
Wyandot	62	8,728	121	10,561
Average percent	68	....	115	....
Totals	....	905,708	....	992,215

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.		Clover.		Horses.
	Damage by Hessian Fly.	Damage by other insects.	Date of sowing, days after March 1.	Area sown this year compared with 1899.	Losses during winter and spring.
	Percent	Percent	Days	Percent	Percent
Adams	40	5	17	83	1
Allen	24	5	16	92	1
Ashland	38	8	27	100	1
Ashtabula	13	12	29	81	2
Athens	17	8	19	97	1
Auglaize	71	7	30	80	4
Belmont	28	8	17	94	2
Brown	27	5	15	85	2
Butler	24	11	11	96	2
Carroll	34	6	19	89	2
Champaign	40	....	33	100	1
Clark	64	8	28	79	1
Clermont	41	3	14	97	3
Clinton	59	4	18	89	1
Columbiana	15	8	26	97	1
Coshocton	38	7	25	100	1
Crawford	30	7	25	97	4
Cuyahoga	30	2	29	91	3
Darke	61	12	26	79	1
Defiance	12	2	34	96	1
Delaware	38	6	31	91	5
Erie	56	2	27	88	2
Fairfield	67	2	26	74	1
Fayette	80	....	20	56	2
Franklin	50	4	30	95	2
Fulton	7	....	35	100	1
Gallia	18	7	11	89	2
Geauga	35	....	33	100	1
Greene	61	....	15	83	1
Guernsey	52	2	15	84	....
Hamilton	38	....	28	100	4
Hancock	44	....	21	99	2
Hardin	30	....	36	90	2
Harrison	15	1	28	100	1
Henry	4	....	26	98	1
Highland	67	8	12	91	3
Hocking	38	2	17	105	2
Holmes	35	7	30	92	1
Huron	41	2	24	92	1
Jackson	23	5	9	80	5
Jefferson	24	3	25	92	1
Knox	31	4	18	98	1
Lake	36	....	33	25	1
Lawrence	21	9	16	88	2
Licking	35	9	22	92	1
Logan	53	9	18	92	2
Lorain	27	13	25	93	1
Lucas	7	12	25	90	1
Madison	68	....	23	78	3
Mahoning	22	2	30	99	....
Marion	31	4	24	90	3
Medina	20	4	27	98	1
Meigs	13	15	14	93	2
Mercer	43	....	32	80	1
Miami	50	17	20	96	2
Monroe	9	4	23	85	8
Montgomery	55	3	20	92	3
Morgan	32	7	23	87	1
Morrow	34	1	21	72	1
Muskingum	35	10	15	99	1
Noble	11	7	16	83	2
Ottawa	5	....	16	68	1

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.		Clover.		Horses.
	Damage by Hessian Fly.	Damage by other insects.	Date of sowing, days after March 1.	Area sown this year compared with 1899.	Losses during winter and spring.
	Percent	Percent	Days	Percent	Percent
Paulding	1	....	39	89	1
Perry	46	2	16	99	1
Pickaway	68	4	22	86	3
Pike	38	1	5	93	1
Portage	23	....	28	97	1
Preble	68	22	22	81	2
Putnam	37	3	31	87	1
Richland	28	7	30	90	3
Ross	53	8	19	91	5
Sandusky	41	....	25	85	....
Scioto	14	2	24	92	1
Seneca	53	....	25	79	1
Shelby	75	6	29	90	1
Stark	16	6	29	95	1
Summit	22	1	26	92	3
Trumbull	24	5	31	97	2
Tuscarawas	33	5	27	93	1
Union	38	2	29	94	1
Van Wert	33	8	30	96	2
Vinton	39	1	13	103	1
Warren	41	1	16	96	1
Washington	23	4	20	115	1
Wayne	24	3	26	96	1
Williams	25	3	25	68	2
Wood	19	4	33	87	2
Wyandot	39	....	29	73	2
Average percent	35	5	Mch 23	90	2

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Cattle.	Sheep.	Hogs.	Berries.
	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Prospect compared with an average.
	Percent	Percent	Percent	Percent
Adams	1	1	1	75
Allen	....	2	1	98
Ashland	1	2	1	93
Ashtabula	2	2	1	86
Athens	1	2	1	79
Auglaize	8	6	8	63
Belmont	2	5	3	81
Brown	2	7	4	92
Butler	2	2	3	78
Carroll	2	9	5	86
Champaign	1	5	1	95
Clark	1	1	1	75
Clermont	1	2	2	81
Clinton	1	2	3	85
Columbiana	2	2	1	92
Coshocton	1	3	2	87
Crawford	3	5	4	79
Cuyahoga	2	2	3	83
Darke	....	2	3	68
Defiance	1	2	2	86
Delaware	2	5	4	80
Erie	2	3	3	86
Fairfield	6	2	3	71
Fayette	1	5	5	83
Franklin	1	3	5	90
Fulton	1	2	1	88
Gallia	2	8	3	78
Geauga	1	2	1	92
Greene	1	2	8	90
Guernsey	....	5	....	89
Hamilton	2	3	1	100
Hancock	2	3	4	62
Hardin	1	2	3	76
Harrison	1	3	....	77
Henry	....	2	1	92
Highland	2	7	6	82
Hocking	1	2	2	90
Holmes	1	2	2	89
Huron	2	4	2	75
Jackson	6	7	10	83
Jefferson	2	4	2	91
Knox	1	2	2	94
Lake	1	3	1	92
Lawrence	3	5	3	88
Licking	1	3	1	79
Logan	1	2	1	80
Lorain	1	3	1	89
Lucas	3	1	7	93
Madison	1	4	10	87
Mahoning	1	2	1	88
Marion	1	3	2	81
Medina	1	1	....	81
Meigs	1	4	1	84
Mercer	4	3	5	87
Miami	2	2	3	52
Monroe	2	3	1	66
Montgomery	3	2	6	55
Morgan	1	3	2	75
Morrow	1	2	3	72
Muskingum	1	3	1	84
Noble	2	3	1	86
Ottawa	1	1	5	96
Paulding	1	4	4	85

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Cattle.	Sheep.	Hogs.	Berries.
	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Prospect compared with an average.
	Percent	Percent	Percent	Percent
Perry	1	4	1	94
Pickaway	8	4	11	93
Pike	1	3	4	91
Portage	....	2	1	92
Preble	2	3	3	68
Putnam	1	4	7	86
Richland	2	4	5	74
Ross	3	5	3	77
Sandusky	1	1	4	81
Scioto	1	3	1	93
Seneca	....	2	2	73
Shelby	1	1	....	88
Stark	1	2	3	74
Summit	1	2	....	80
Trumbull	2	3	3	92
Tuscarawas	2	2	4	90
Union	1	2	1	71
Van Wert	1	3	7	88
Vinton	1	2	2	98
Warren	1	3	1	89
Washington	1	2	2	88
Wayne	2	2	2	84
Williams	1	3	....	100
Wood	1	2	3	93
Wyandot	1	2	1	90
Average percent	2	3	3	84

OFFICIAL REPORT

OF THE

Ohio Department of Agriculture

ON THE

ACREAGE AND CONDITION

OF

Wheat, Corn and Potatoes, and the Condition of Other Crops and Live Stock July 1, 1900.

The following report is based on the returns received from the regular crop correspondents of the Department, and represents conditions July 1. For acreage of the crops named, comparison is with the enumeration made by township assessors. In the compilation of this report, every township in the State was represented in the returns:

WHEAT—Condition compared with an average	25	percent
" Area seeded last fall	3,030,855	acres
" Estimated area plowed up and put in other crops	34	percent
" Estimated area for the harvest	1,953,505	acres
BARLEY—Condition compared with an average	80	percent
RYE—Condition compared with an average	70	"
OATS—Condition compared with an average	88	"
CORN—Area in 1899	2,906,361	acres
" Area planted this year compared with 1899	105	percent
" Estimated area for 1900	3,051,733	acres
" Condition compared with an average	90	percent
" Damage by cut worm	3	"
" Damage by white grub worm	3	"
CLOVER—Damage by white grub worm	4	"
POTATOES—Area in 1899	111,744	acres
" Area planted compared with last year	101	percent
" Estimated area for 1900	112,587	acres
" Condition compared with an average	93	percent
TOBACCO—Area compared with last year	98	"
TIMOTHY—Condition compared with an average	68	"
PASTURES—Condition compared with an average	77	"
HORSES—Condition compared with an average	94	"
COLTS—Number compared with an average	86	"
CATTLE—Condition compared with an average	94	"
CALVES—Number compared with an average	95	"
WOOL—Clip compared with last year	99	"

The wheat harvest is on with a prospect of only 25 percent of an average product, a still further decline of 4 percent as compared with the prospect indicated June 1. Wheat prospect has shown a steady decline from the appearance of the plant to the opening of the harvest, the result of which will undoubtedly be the lowest product since 1866. The crop is bad over the entire State, ranging from total failure to above 50 percent in but four unimportant wheat counties. The great proportion of the crop is below 35 percent; 24 counties averaging below 15 percent. A great many fields will simply be cut for feed or be pastured. A vast amount of wheat was plowed up and put to other crops, principally corn and oats. Of the 3,030,855 acres estimated to have been sown last fall 1,953,505 acres is the amount estimated to have been plowed up this spring, leaving but 1,077,350 acres for the harvest, and much of this not worth the cutting. It can very readily be seen that the Ohio wheat crop for 1900 is a great failure compared with the average product and with the posibilities of the State in wheat production. We can not now anticipate a crop of more than twelve millions of bushels. The significance of this is strikingly apparent when we consider that Ohio has produced above fifty millions of bushels.

In 1898 and 1899 Ohio had a large corn area, but the area of the present year will exceed either of those years. The present corn area is estimated at 3,051,733 acres, an increase over last year of 145,372 acres, and being about the largest area in the history of the State. The crop shows a very fair condition of growth throughout the State and present prospects are promising. Recent rains have aided in advancing corn growth and if weather conditions continue favorable, the corn crop of 1900 will be among the largest in total product as well as in total area. The only complaint at present is on account of the cut worm and white grub, which are reported to be working in the corn, the estimated damage for each being about 3 percent, which damage rapid growth may overcome.

There is a fair average area of potatoes, a slight increase over last year's area, but weather conditions have not been altogether favorable to successful growth. The condition, however, is 93 percent of a fair average, which is more promising than the very short crops that have been produced the past three years.

Drouth severely affected timothy and as a consequence the crop of hay is light.

Pastures suffered very materially from drouth during most of the spring, but recent rains have somewhat revived them.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND CONDITION OF CROPS AND THE CONDITION OF LIVE STOCK, JULY 1, 1900.

Counties.	Wheat.				Barley.	Rye.	Oats.
	Condition compared with an average.	Area seeded last fall.	Estimated area plowed up and put in other crops.	Estimated area for the harvest.	Condition compared with an average.	Condition compared with an average.	Condition compared with an average.
	Percent	Acres	Percent	Acres	Percent	Percent	Percent
Adams	38	29,127	14	25,049	80	88	72
Allen	7	32,606	52	15,651	80	45	88
Ashland	35	36,767	20	29,414	....	70	90
Ashtabula	24	15,258	10	13,732	....	....	99
Athens	63	16,130	9	14,678	....	90	80
Auglaize	10	43,555	68	9,938	75	70	83
Belmont	24	27,794	11	24,737	....	67	81
Brown	25	32,367	10	29,130	....	100	115
Butler	28	66,638	30	46,647	65	68	113
Carroll	26	17,913	8	16,480	....	70	79
Champaign	8	52,407	50	26,204	....	85	100
Clark	14	46,343	49	23,635	100	93	98
Clermont	10	27,157	20	21,726	....	83	105
Clinton	7	47,280	42	27,422	75	73	101
Columbiana	53	23,321	5	13,155	....	77	98
Coshocton	18	36,019	21	28,455	....	49	71
Crawford	29	31,887	10	28,698	80	59	95
Cuyahoga	25	12,001	10	10,801	....	85	78
Darke	5	77,444	85	11,617	70	65	96
Defiance	35	36,759	28	26,466	91	82	90
Delaware	17	28,068	37	17,683	63	48	54
Erie	20	21,876	42	12,688	90	74	98
Fairfield	8	54,669	21	43,189	....	86	78
Fayette	14	49,225	70	14,768	....	65	92
Franklin	10	50,035	60	20,014	....	61	79
Fulton	20	33,893	50	16,947	90	50	75
Gallia	53	26,857	10	24,171	....	82	85
Geauga	29	10,410	7	9,681	100	50	90
Greene	10	54,913	55	24,711	50	60	100
Guernsey	26	22,209	25	16,657	85	64	94
Hamilton	15	19,437	25	14,578	....	75	100
Hancock	10	54,409	35	35,366	75	65	75
Hardin	20	40,719	73	10,994	100	70	72
Harrison	40	15,139	2	14,836	....	....	100
Henry	32	44,127	40	26,476	93	82	93
Highland	6	48,909	39	29,834	....	82	97
Hocking	19	31,802	26	23,163	67	83	87
Holmes	29	29,574	8	27,208	85	72	96
Huron	14	37,097	29	26,339	90	74	95
Jackson	30	17,619	2	17,267	....	75	85
Jefferson	46	17,843	7	16,594	67	76	83
Knox	17	39,972	12	35,175	75	71	77
Lake	25	6,328	40	3,797	....	....	75
Lawrence	72	12,608	6	11,852	85	89	87
Licking	14	49,021	15	41,668	....	71	76
Logan	10	38,501	53	18,095	83	57	78
Lorain	22	24,046	26	18,094	88	62	90
Lucas	37	17,365	23	13,371	100	70	92
Madison	10	48,278	80	9,656	70	70	94
Mahoning	30	17,166	10	15,449	....	80	87
Marion	21	31,952	57	13,739	90	72	85
Medina	20	27,179	6	25,548	80	65	89
Meigs	50	25,740	....	25,740	....	60	87
Mercer	14	44,063	80	44,063	95	58	83
Miami	6	48,419	54	22,273	61	70	98
Monroe	50	24,696	10	22,226	....	77	90
Montgomery	15	46,882	40	28,129	....	....	100
Morgan	27	18,739	7	17,427	....	54	90
Morrow	25	22,932	19	18,575	....	74	78
Muskingum	17	32,777	17	27,206	....	81	87
Noble	45	17,610	10	15,849	....	75	80

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ETC.—Continued.

Counties.	Wheat.				Barley.	Rye.	Oats.
	Condition compared with an average.	Area seeded last fall.	Estimated area plowed up and put in other crops.	Estimated area for the harvest.	Condition compared with an average.	Condition compared with an average.	Condition compared with an average.
	Percent	Acres	Percent	Acres	Percent	Percent	Percent
Ottawa	35	22,442	50	11,221	100	65	95
Paulding	60	28,033	12	24,669	79	78	91
Perry	6	22,958	7	21,351	50	82	80
Pickaway	10	58,812	50	29,406	80	84	83
Pike	26	24,916	43	14,202	75	60	79
Portage	37	22,371	15	19,015	....	56	87
Preble	....	51,593	79	10,835	....	85	98
Putnam	15	53,229	53	25,018	91	62	84
Richland	20	41,915	10	37,724	....	40	93
Ross	30	55,429	43	31,595	70	80	87
Sandusky	23	45,575	52	21,876	....	....	87
Scioto	55	23,765	16	19,963	....	....	88
Seneca	12	61,575	41	36,329	90	60	69
Shelby	....	47,571	75	11,893	80	85	65
Stark	30	50,818	27	37,097	....	60	90
Summit	33	30,712	5	29,176	40	68	65
Trumbull	29	16,070	18	13,177	....	45	96
Tuscarawas	29	35,395	20	28,316	100	66	93
Union	33	31,259	58	13,129	75	66	90
Van Wert	18	36,877	42	21,389	96	73	96
Vinton	42	12,598	10	11,338	....	....	105
Warren	9	41,371	19	33,511	....	90	97
Washington	18	35,163	20	28,130	....	75	100
Wayne	34	55,483	7	51,599	70	50	92
Williams	5	32,765	50	16,383	90	50	100
Wood	35	48,681	40	29,209	85	87	100
Wyandot	19	32,102	37	20,224	65	69	89
Average Percent	25	....	34	....	80	70	88
Totals	....	3,030,855	....	1,953,505	....	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.						Clover.
	Area in 1899.	Area planted this year compared with 1899.	Total estimated area for 1900.	Condition compared with an average.	Damage by cut worm.	Damage by white grub worm.	Damage by white grub worm.
	Acres	Percent	Acres	Percent	Percent	Percent	Percent
Adams	35,479	102	36,189	86	4	6	12
Allen	30,625	100	30,625	100	3	....	....
Ashland	22,319	100	22,319	80	3	5	20
Ashtabula	14,815	98	14,519	90	2	1	1
Athens	14,575	101	14,721	90	4	2	4
Auglaize	39,846	100	39,846	90	6	....	15
Belmont	22,624	101	22,850	93	2	4	24
Brown	43,785	100	43,785	100	10	....	....
Butler	50,860	105	53,403	110	5	3	8
Carroll	13,635	100	13,635	94	5	7	3
Champaign	52,966	106	56,144	90	3	7	....
Clark	45,283	112	50,717	95	6	5	3
Clermont	34,415	100	34,415	95	4	2	10
Clinton	53.903	116	62,527	97	2	2	1
Columbiana	17,335	100	17,335	91	3	5	2
Coshocton	24,107	103	24,830	71	....	5	4
Crawford	34,730	99	34,383	92	6	2	10
Cuyahoga	10,516	100	10,516	85	6	....	2
Darke	70,783	110	77,861	96	2	1	1
Defiance	29,403	100	29,403	85	9	1	....
Delaware	38,420	106	40,725	74	4	3	3
Erie	15,617	101	15,773	95	....	....	3
Fairfield	79,259	103	81,637	85	2	3	3
Fayette	51,877	118	61,215	102	1	....	6
Franklin	59,937	102	61,136	85	3	5	....
Fulton	33,173	103	34,168	100	....	....	....
Gallia	22,297	100	22,297	94	3	5	3
Geauga	10,284	100	10,284	89	2	3	3
Greene	50,694	110	55,763	97	2	2	10
Guernsey	18,998	102	19,378	93	5	1	5
Hamilton	16,676	105	17,510	90	5	....	....
Hancock	51,967	115	60,362	83	10	3	....
Hardin	61,908	118	73,051	92	5	....	....
Harrison	12,334	100	12,334	90	....	....	....
Henry	58,938	100	58,938	100	4	....	....
Highland	49,468	106	52,436	96	5	6	10
Hocking	15,861	109	17,288	92	3	3	3
Holmes	20,344	101	20,547	98	1	1	1
Huron	28,582	104	29,725	92	4	2	4
Jackson	13,996	102	14,276	78	6	8	....
Jefferson	13,480	103	13,884	82	5	7	7
Knox	32,980	101	33,310	89	3	3	3
Lake	5,784	100	5,784	75	....	....	....
Lawrence	15,879	100	15,879	100	1	1	2
Licking	50,538	101	51,043	88	5	7	6
Logan	41,210	117	48,216	92	6	1	9
Lorain	17,993	101	18,173	92	3	....	2
Lucas	22,169	100	22,169	86	3	....	....
Madison	72,388	118	85,428	92	3	1	3
Mahoning	16,832	100	16,832	95	8	1	1
Marion	43,268	105	45,431	94	3	1	2
Medina	19,398	101	19,592	84	1	2	1
Meigs	15,159	100	15,159	98	....	....	15
Mercer	41,784	103	43,043	97	2	1	2
Miami	40,817	105	42,858	100	1	....	13
Monroe	17,847	100	17,847	97	2	4	1
Montgomery	42,575	100	42,575	100	5	....	....
Morgan	15,281	100	15,281	93	4	4	4
Morrow	27,056	101	27,327	75	2	3	3
Muskingum	28,801	111	31,969	87	3	7	4
Noble	17,102	100	17,102	72	3	8	10
Ottawa	21,563	101	21,779	80	2	....	....
Paulding	42,566	98	41,725	77	4	....	....
Perry	13,077	100	13,077	78	1	1	1

[illegible] OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.						Clover.
	Area in 1899.	Area planted this year compared with 1899.	Total estimated area for 1900.	Condition compared with an average.	Damage by cut worm.	Damage by white grub worm.	Damage by white grub worm.
	Acres	Percent	Acres	Percent	Percent	Percent	Percent
Pickaway	60,671	120	72,805	94	6	3	6
Pike	24,142	109	26,315	89	3	2	10
Portage	14,607	99	14,461	85	1	2	2
Preble	48,462	109	52,824	97	2	1	1
Putnam	53,842	100	53,842	86	6	2	1
Richland	28,860	102	29,437	83	8	6	10
Ross	55,918	116	64,865	93	1	4	3
Sandusky	36,535	103	37,631	85	10	....	5
Scioto	23,635	100	23,635	95	....	2	5
Seneca	47,281	108	51,063	76	2	....	2
Shelby	41,883	120	50,260	85	8	....	....
Stark	27,456	100	27,456	90	5	5	2
Summit	17,702	98	17,347	76	9	10	10
Trumbull	15,079	101	15,230	89	5	1	4
Tuscarawas	21,096	101	21,307	89	3	6	9
Union	42,160	101	42,582	76	3	1	1
Van Wert	42,679	91	38,838	105	3	3	4
Vinton	11,150	105	11,708	110	5	2	2
Warren	43,046	100	43,046	96	8	2	2
Washington	21,796	98	21,360	101	1	....	3
Wayne	35,417	99	35,063	87	2	4	3
Williams	28,263	103	29,111	95	10	....	....
Wood	76,616	100	76,616	90	2	1	1
Wyandot	34,884	102	35,582	92	3	5	4
Average percent	....	105	....	90	3	3	4
Totals	2,906,361	....	3,051,738	....	....	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Potatoes.				Tobacco.	Timothy.
	Area in 1899.	Area planted compared with last year.	Total estimated area for 1900.	Condition compared with an average.	Area compared with last year.	Condition compared with an average.
	Acres.	Per cent.	Acres.	Per cent.	Per cent.	Per cent.
Adams	245	97	238	72	92	60
Allen	672	100	672	100	....	67
Ashland	937	100	937	100	....	80
Ashtabula	2,852	99	2,823	98	....	89
Athens	490	100	490	87	....	66
Auglaize	906	100	906	88	85	58
Belmont	856	95	813	95	90	56
Brown	620	100	620	100	120	100
Butler	932	100	932	110	100	73
Carroll	544	103	560	100	....	65
Champaign	550	101	556	93	103	85
Clark	660	98	647	100	100	78
Clermont	938	108	1,013	105	120	73
Clinton	564	108	609	95	100	77
Columbiana	1,637	103	1,686	99	....	69
Coshocton	949	100	949	80	....	55
Crawford	1,456	98	1,427	89	....	66
Cuyahoga	6,285	110	6,914	90	....	70
Darke	1,501	100	1,501	94	98	71
Defiance	1,141	99	1,130	96	100	82
Delaware	544	98	533	72	....	45
Erie	2,770	103	2,853	100	....	64
Fairfield	1,124	100	1,124	93	....	69
Fayette	140	95	133	94	....	71
Franklin	1,435	96	1,378	81	....	62
Fulton	1,192	100	1,192	100	....	75
Gallia	210	100	210	84	75	69
Geauga	2,890	102	2,948	98	....	75
Greene	711	98	697	95	90	75
Guernsey	467	100	467	98	....	75
Hamilton	3,128	100	3,128	100	85	80
Hancock	1,209	103	1,245	90	....	68
Hardin	1,153	98	1,130	94	....	53
Harrison	280	100	280	75	....	80
Henry	1,116	100	1,116	93	....	65
Highland	310	100	310	89	81	66
Hocking	614	98	602	92	....	68
Holmes	919	101	928	98	....	67
Huron	1,535	99	1,520	96	....	61
Jackson	164	100	164	85	....	70
Jefferson	655	100	655	92	....	77
Knox	574	100	574	85	....	45
Lake	1,542	100	1,542	75	....	40
Lawrence	208	100	208	95	82	75
Licking	1,207	99	1,195	89	....	69
Logan	516	101	521	108	....	58
Lorain	2,182	99	2,160	90	....	60
Lucas	3,130	98	3,067	97	....	76
Madison	244	101	246	94	....	52
Mahoning	6,315	104	6,568	108	....	87
Marion	777	100	777	92	....	40
Medina	2,039	101	2,059	94	....	65
Meigs	1,277	100	1,277	87	....	68
Mercer	808	100	808	92	....	78
Miami	813	100	813	92	102	69
Monroe	1,220	100	1,220	100	95	88
Montgomery	1,449	100	1,449	95	100	90
Morgan	404	98	396	85	100	57
Morrow	819	102	835	87	100	54
Muskingum	692	112	775	97	....	74
Noble	558	98	547	97	95	60
Ottawa	639	100	639	75	....	60
Paulding	412	100	412	90	....	84

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Potatoes.				Tobacco.	Timothy.
	Area in 1899.	Area planted compared with last year.	Total estimated area for 1900.	Condition compared with an average.	Area compared with last year.	Condition compared with an average.
	Acres.	Per cent.	Acres.	Per cent.	Per cent.	Per cent.
Perry	596	100	596	83	....	63
Pickaway	363	98	356	83	....	61
Pike	484	100	484	87	....	55
Portage	6,144	103	6,328	90	....	59
Preble	735	100	735	100	113	89
Putnam	1,090	100	1,090	94	....	61
Richland	1,723	103	1,775	92	....	70
Ross	594	96	582	97	....	58
Sandusky	1,929	100	1,929	98	....	73
Scioto	952	97	923	79	....	59
Seneca	1,468	99	1,453	91	....	45
Shelby	1,079	100	1,079	100	100	70
Stark	3,371	98	3,304	90	....	50
Summit	2,489	98	2,439	75	....	47
Trumbull	2,905	99	2,876	91	....	81
Tuscarawas	2,048	99	2,028	91	....	78
Union	248	100	248	85	75	76
Van Wert	683	98	669	105	75	77
Vinton	370	95	351	106	....	88
Warren	528	97	512	98	96	79
Washington	1,509	101	1,524	101	75	87
Wayne	2,211	94	2,078	85	75	59
Williams	1,055	100	1,055	100	....	90
Wood	1,203	100	1,203	100	....	72
Wyandot	841	98	824	96	....	65
Average per cent	....	101	....	93	98	68
Totals	111,744	....	112,587	....	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Pastures.	Horses.	Colts.	Cattle.	Calves.	Wool.
	Condition compared with an average.	Condition compared with an average.	Number compared with an average.	Condition compared with an average.	Number compared with an average.	Clip compared with las year.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Adams	67	94	79	87	87	95
Allen	72	100	88	100	100	100
Ashland	60	100	100	90	90	100
Ashtabula	84	95	94	95	92	88
Athens	65	98	93	98	99	103
Auglaize	63	87	73	90	87	90
Belmont	81	95	69	91	95	101
Brown	90	100	50	100	100	100
Butler	90	100	78	90	88	100
Carroll	78	85	98	89	100	105
Champaign	65	100	75	95	100	90
Clark	75	90	86	93	94	100
Clermont	83	100	93	100	100	105
Clinton	80	97	99	97	99	100
Columbiana	90	100	99	101	98	105
Coshocton	73	94	99	87	97	95
Crawford	77	98	92	96	94	96
Cuyahoga	75	85	55	88	80	98
Darke	61	85	72	82	85	96
Defiance	97	99	98	100	100	100
Delaware	44	86	98	88	97	101
Erie	89	100	110	98	100	100
Fairfield	80	95	78	96	91	99
Fayette	78	95	71	95	88	95
Franklin	60	97	79	91	96	98
Fulton	100	100	70	100	100	100
Gallia	94	93	98	93	86	102
Geauga	82	100	80	100	94	101
Greene	77	85	70	90	72	100
Guernsey	81	74	95	95	98	104
Hamilton	90	100	105	100	100	120
Hancock	65	100	105	95	105	103
Hardin	51	86	84	92	89	100
Harrison	80	100	100	100	100	100
Henry	80	100	95	100	100	100
Highland	79	86	74	94	91	98
Hocking	71	95	88	93	93	101
Holmes	77	100	93	92	98	103
Huron	79	95	93	99	101	89
Jackson	50	100	65	100	101	102
Jefferson	83	94	75	89	91	99
Knox	60	91	96	90	96	102
Lake	60	100	100	100	100	100
Lawrence	87	82	50	90	95	100
Licking	69	92	73	91	93	97
Logan	82	95	87	96	90	97
Lorain	72	99	82	98	94	96
Lucas	88	100	105	100	105	98
Madison	69	89	96	95	98	100
Mahoning	92	97	77	93	100	87
Marion	78	89	77	93	96	101
Medina	68	91	90	89	98	98
Meigs	80	87	75	95	80	98
Mercer	90	100	93	100	97	108
Miami	64	94	97	95	90	90
Monroe	97	97	82	98	93	105
Montgomery	80	95	90	85	90	100
Morgan	78	95	75	97	95	100
Morrow	59	92	87	91	98	99
Muskingum	86	97	91	95	98	100
Noble	65	95	95	92	90	100
Ottawa	100	100	100	100	100	100

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Pastures.	Horses.	Colts.	Cattle.	Calves.	Wool.
	Condition compared with an average.	Condition compared with an average.	Number compared with an average.	Condition compared with an average.	Number compared with an average.	Clip compared with last year.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Paulding	98	98	90	95	95	100
Perry	70	94	88	85	85	100
Pickaway	64	88	93	93	96	98
Pike	72	82	60	87	83	95
Portage	81	98	79	96	101	98
Preble	93	100	104	100	103	103
Putnam	73	94	63	90	80	98
Richland	67	90	47	93	87	88
Ross	83	97	95	93	95	97
Sandusky	85	100	80	99	100	99
Scioto	75	100	69	93	100	97
Seneca	40	88	75	90	85	108
Shelby	75	65	80	90	100	100
Stark	85	100	85	100	95	90
Summit	49	91	84	88	97	86
Trumbull	91	95	79	98	94	96
Tuscarawas	84	97	92	95	99	103
Union	84	100	102	98	93	98
Van Wert	80	101	98	94	92	97
Vinton	60	100	85	100	100	112
Warren	87	95	95	75	100	101
Washington	93	97	101	100	101	102
Wayne	66	96	72	94	91	92
Williams	100	100	110	105	101	105
Wood	95	100	100	100	100	80
Wyandot	65	92	91	73	90	99
Average per cent	77	94	86	94	95	99

OFFICIAL REPORT

OF THE

Ohio Department of Agriculture

ON THE

Acreage and Product of Wheat, Oats, Barley and Rye, and the Condition of Other Crops, October 1, 1900.

The following report is the first issued by the Department estimating the product in bushels per acre of wheat, oats, barley and rye, for the harvest of the present year, and is based on the results of threshing throughout the several counties of the State. The condition or prospect of other crops named is by percentage comparison with a full average condition or prospect:

WHEAT—Area sown last fall as returned by township assessors	2,718,513	acres
" Estimated area plowed up this spring	38	percent
" Total estimated area harvested	1,693,178	acres
" Product per acre estimated from threshers' returns	6	bushels
" Average product per acre on original area seeded	3.72	"
" Total estimated product for the State	10,139,187	bushels
" Quality compared with an average	65	percent
" Crop of 1899 still in producers' hands	13	"
OATS—Area as returned by township assessors	1,185,677	acres
" Product per acre as estimated from threshers' returns	38.6	bushels
" Total estimated product for the State	45,866,988	"
" Quality compared with an average	88	percent
BARLEY—Fall and Spring:		
" Area as returned by township assessors	29,410	acres
" Product per acre estimated from threshers' returns	27.4	bushels
" Total estimated product for the State	796,224	"
" Quality compared with an average	83	percent
RYE—Area as returned by township assessors	24,372	acres
" Product per acre estimated from threshers' returns	17.4	bushels
" Total estimated product for the State	420,456	"
" Quality compared with an average	88	percent
CORN—Prospect compared with an average	95	"
" Cut up for fodder	84	"
" Average date for cutting for fodder	13	Sept.
POTATOES—Yield compared with an average	70	percent
TOBACCO—Condition compared with an average	90	"
PASTURES—Condition compared with an average	74	"
APPLES—Prospect compared with an average	46	"

The area sown to wheat in the fall of 1899 for the harvest of 1900, according to the returns made by township assessors, amounted to 2,718,513 acres, a good average area for Ohio. On the first appearance of the plant it was attacked by Hessian fly, which made its appearance throughout the entire State, to a greater or less extent. At the closing in of winter the wheat plant was so reduced in vitality as to be unable to fully withstand the hard freezing and thawing, and much injury was sustained from winter killing. As the season advanced, the work of the fly became most ruinous. No portion of the State was fully exempt from its ravages, while in some counties and sections the destruction was total. In many counties it was at first thought that the late sown wheat would suffer comparatively little, but this did not prove to be the case, for the pest showed no respect to either season of planting or variety of wheat, but kept at its work until the reaper entered the field. Never, perhaps, has the destruction of wheat by fly been so general and so severe.

Of the wheat that showed total failure in the spring, or so greatly damaged as to give no promise of a crop worth cutting, there was plowed up, according to the most careful estimate that could be made, 38 percent of the area seeded in the fall, thus leaving only 1,693,178 acres standing for the harvest. The crop on this continued to decline from week to week up to the harvest, which has resulted the lowest in average bushels per acre and in total product for the State since 1866. The average per acre on the area harvested is six bushels, and the total product ten million bushels, being an average product per acre on the total seeded last fall of a little less than three and three-fourths bushels per acre. The quality of the grain is poor, and very much of it is refused at any price on the market.

Of the wheat plowed up in the spring, a large amount went into oats and corn, and the area of these crops, therefore, shows much larger than an average.

Oats produced well to the acre, and the total product on the increased area is 45,000,000 of bushels, being several millions above a full average product. The quality of the grain is only fair, some damage being sustained after the crop was harvested.

Corn indicates a prospect of 95 percent, as compared with an average. In some of the corn growing counties, the yield per acre will not be so great as was expected, but the increase in area will make a large aggregate product for the State. In some localities the chinch bug did considerable damage. Corn is about all in shock and very generally in good condition.

Potatoes indicate a prospect of less than three-fourths of a full average crop. The season has not been altogether favorable, and bugs and blight did much injury.

A fairly large tobacco crop is reported, but that on low, black ground has sustained damage by rust. Some injury was also done by wet weather early in the season.

The apple prospect is low, less than half a crop for the State and very unevenly distributed, averaging from as low as ·5 percent to as high as 100 percent.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND PRODUCT OF WHEAT, OATS, BARLEY AND RYE, AND THE CONDITION OF OTHER CROPS, OCTOBER 1, 1900.

Counties.	Wheat.						
	Area sown last fall, as returned by township assessors.	Estimated area plowed up this spring.	Total estimated area harvested.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.	Crop of 1899 still in producers' hands.
	Acres	Percent	Acres	Bushels	Bushels	Percent	Percent
Adams	26,241	14	22,567	7.50	169,252	80	13
Allen	35,915	52	17,239	2.	34,478	50	25
Ashland	30,032	20	24,026	4.83	116,045	82	17
Ashtabula	13,565	10	12,208	3.44	41,996	49	23
Athens	11,421	9	10,393	12.50	129,912	94	6
Auglaize	42,370	68	13,558	2.	27,116	50	5
Belmont	24,873	11	22,137	7.	154,959	80	24
Brown	28,901	10	26,011	6.83	177,655	93	4
Butler	55,520	30	16,656	8.	132,248	65	1
Carroll	17,712	8	16,295	4.30	70,068	55	28
Champaign	49,001	50	24,500	2.16	52,920	52	15
Clark	36,762	49	18,749	2.50	46,872	38	18
Clermont	21,339	20	17,061	6.12	104,413	75	14
Clinton	43,071	42	24,980	2.56	63,949	56	9
Columbiana	23,711	5	21,525	7.81	168,110	86	18
Coshocton	29,799	21	23,541	3.93	92,516	68	13
Crawford	31,080	10	27,972	4.50	125,873	65	17
Cuyahoga	10,585	10	9,526	7.25	69,053	73	9
Darke	71,793	85	10,769	2.	21,538	40	14
Defiance	29,574	28	21,293	10.25	218,253	87	1
Delaware	28,275	37	17,813	5.79	103,137	72	14
Erie	19,934	42	11,562	3.33	38,501	60	11
Fairfield	43,524	21	34,381	5.67	194,940	57	13
Fayette	49,263	70	14,779	4.	59,116	58	5
Franklin	42,971	60	17,188	5.40	92,815	61	18
Fulton	24,734	50	12,367	5.	61,835	50	5
Gallia	23,694	10	21,324	9.33	198,740	88	6
Geauga	9,281	7	8,631	4.50	38,839	71	19
Greene	49,664	55	22,349	5.35	119,567	40	5
Guernsey	19,240	25	14,430	4.10	59,163	65	19
Hamilton	15,086	25	11,315	6.	67,890	60	10
Hancock	41,250	35	26,813	4.63	124,144	38	9
Hardin	34,864	73	9,403	2.50	23,507	64	9
Harrison	12,723	2	12,466	3.63	45,251	66	24
Henry	42,628	40	25,577	4.67	119,445	43	5
Highland	39,178	39	16,063	1.87	30,038	56	17
Hocking	15,289	26	11,314	4.	45,256	70	20
Holmes	27,079	8	24,913	3.	74,739	73	17
Huron	36,476	29	25,898	3.76	97,376	53	22
Jackson	15,302	2	14,996	6.25	93,725	67	13
Jefferson	14,813	7	13,776	7.71	106,213	76	10
Knox	36,485	12	32,107	4.50	144,481	74	14
Lake	5,053	40	3,032	6.66	20,193	67	10
Lawrence	11,645	6	10,946	12.	131,352	80	3
Licking	44,488	15	40,015	4.70	188,070	72	18
Logan	47,223	53	22,195	5.50	122,072	58	9
Lorain	23,249	26	17,194	5.13	88,005	63	15
Lucas	13,578	23	10,455	12.	125,460	83	....
Madison	28,352	80	5,670	6.	34,020	58	10
Mahoning	15,385	10	13,846	8.50	117,691	68	9
Marion	29,746	57	12,791	4.	51,164	62	15
Medina	25,442	6	23,915	6.65	159,035	72	22
Meigs	20,584	....	20,584	11.50	236,716	82	8
Mercer	36,605	80	7,321	2.10	15,374	50	12
Miami	51,997	54	23,918	2.	47,836	35	15
Monroe	22,967	10	20,670	6.	124,020	75	10
Montgomery	45,475	40	27,285	3.	81,855	40	17
Morgan	15,202	7	14,138	6.04	85,454	74	9
Morrow	24,644	19	19,962	4.47	89,230	60	23
Muskingum	33,292	17	27,632	5.83	161,095	78	14

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.						
	Area sown last fall, as returned by township assessors.	Estimated area plowed up this spring.	Total estimated area harvested.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.	Crop of 1899 still in producers' hands.
	Acres	Percent	Acres	Bushels	Bushels	Percent	Percent
Noble	16,200	10	14,580	8.25	122,185	76	15
Ottawa	20,590	50	10,295	5.	51,475	80	5
Paulding	23,648	12	20,810	19.	395,390	95	1
Perry	19,505	7	18,140	4.03	73,104	69	16
Pickaway	58,274	50	29,137	6.42	187,060	57	11
Pike	19,257	43	10,976	6.67	73,210	70	8
Portage	21,347	15	18,155	9.07	164,666	86	6
Preble	51,326	79	10,778	1.	10,778	50	12
Putnam	51,583	53	24,244	12.50	303,050	57	8
Richland	38,453	10	34,608	5.25	181,692	55	34
Ross	41,475	43	23,641	6.	141,846	70	12
Sandusky	41,278	52	19,813	4.50	89,159	41	9
Scioto	21,475	16	18,039	18.	324,702	97	2
Seneca	58,064	41	34,258	3.54	121,273	47	12
Shelby	50,044	75	12,511	5.50	68,810	37	15
Stark	48,306	27	35,263	11.95	421,393	87	9
Summit	27,152	5	25,794	10.50	270,837	74	13
Trumbull	15,261	18	12,514	5.62	60,329	69	18
Tuscarawas	29,953	20	23,962	2.52	60,384	54	25
Union	33,971	58	14,268	6.	85,608	77	7
Van Wert	33,642	42	19,512	2.66	51,902	50	8
Vinton	9,321	10	8,389	5.34	44,797	72	4
Warren	33,350	19	27,013	6.50	175,585	48	4
Washington	30,179	20	24,143	7.	169,001	85	11
Wayne	53,300	7	49,569	7.50	371,767	77	8
Williams	24,660	50	12,230	5.	61,150	50	6
Wood	43,415	40	17,366	8.	138,928	64	17
Wyandot	33,539	37	21,130	4.	84,520	65	20
Average	....	38	....	6.	....	65	13
Totals	2,718,513	....	1,693,178	....	10,139,187	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Oats.				Barley—Fall and Spring.			
	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.
	Acres	Bushels	Bushels	Percent	Acres	Bushels	Bushels	Percent
Adams	2,357	30.	70,710	90	....	....	....	....
Allen	15,431	40.	617,240	100	369	10.	3,690	75
Ashland	15,938	36.	573,768	90	93	20.	1,860	75
Ashtabula	20,724	37.44	775,907	91	37	10.50	389	90
Athens	974	23.83	22,723	97	....	....	....	....
Auglaize	21,582	47.88	1,033,346	100	112	33.	3,696	80
Belmont	7,635	28.67	118,895	89	29	20.	580	90
Brown	5,895	28.	165,060	100	11	10.	110	80
Butler	10,608	32.50	344,760	87	501	30.	15,030	70
Carroll	23,398	35.	818,930	88	10	15.	150	90
Champaign	19,220	51.	980,220	93	127	20.	2,540	100
Clark	16,551	34.12	564,720	87	153	15.	2,295	70
Clermont	8,970	26.50	237.705	98	8	20.	160	90
Clinton	6,503	36.83	239,505	98	46	10.	460	80
Columbiana	18,552	39.88	739,854	97	33	20.	660	90
Coshocton	9,963	31.29	311,742	98	33	12.	396	80
Crawford	21,317	37.33	795,764	91	120	24.	2,880	83
Cuyahoga	15,174	38.20	579,647	92	4	20.	80	90
Darke	33,575	37.17	1,247,983	93	427	26.67	11,388	95
Defiance	20,270	32.50	658,775	95	1.284	20.	25,680	80
Delaware	11,995	23.71	284,301	85	78	16.	1,248	72
Erie	15,340	44.33	680,022	100	359	30.	10,770	100
Fairfield	6,887	30.	206,610	78	44	20.	880	90
Fayette	5,618	36.67	206,012	87	75	10.	750	80
Franklin	14,320	32.67	467,834	85	69	15.	1,035	80
Fulton	22,776	40.	911,040	88	957	30.	28,710	100
Gallia	1,520	20.	30,400	87	....	....	....	....
Geauga	13,551	38.75	525,101	94	12	27.	324	75
Greene	8,556	39.50	337,962	88	43	20.	860	75
Guernsey	6,373	29.	184,817	97	24	10.	240	75
Hamilton	2,731	30.	81,930	75	15	10.	150	80
Hancock	19,515	32.33	630,920	97	676	33.50	22,646	95
Hardin	14,296	38.77	554,256	88	27	25.	675	100
Harrison	6,206	35.75	221,865	96	52	10.	520	75
Henry	16,944	43.33	734,184	87	3,093	27.50	85,058	80
Highland	2,110	30.45	64,250	92	21	25.	525	90
Hocking	1,398	28.	39,144	100	....	....	....	....
Holmes	15,520	50.	776;000	87	22	15.	330	71
Huron	27,272	42.46	1,103,425	95	136	15.	2,040	77
Jackson	613	20.	12,260	75	3	20.	60	90
Jefferson	9,955	34.29	341,267	94	60	25.	1,500	75
Knox	10,062	33.33	334,366	86	37	15.	555	75
Lake	7,616	33.66	256,354	100	44	15.	660	80
Lawrence	3,174	15.	47,610	90	....	....	....	....
Licking	10,916	25.89	282,615	85	9	10.	90	90
Logan	16,909	49.20	831,923	104	103	25.	2,575	80
Lorain	20,154	45.25	911,969	99	100	10.	1,000	80
Lucas	11,971	44.58	533,667	92	556	34.50	19,182	85
Madison	16,010	35.50	568,355	95	292	23.50	6,862	80
Mahoning	15,619	50.	780,950	101	12	15.	180	80
Marion	18,060	42.50	767,550	95	8	16.50	13,200	95
Medina	20,522	41.78	857,409	96	171	22.	3,762	100
Meigs	1,413	27.50	38,858	93	....	....	....	....
Mercer	34,338	40.	1,373,520	95	690	27.50	18,975	90
Miami	20,851	45.	938,295	97	66	35.	2,310	75
Monroe	6,775	25.	169,375	100	....	....	....	....
Montgomery	17,427	43.12	751,452	96	65	18.	1,170	50
Morgan	2,532	26.16	66,237	97	5	18.	90	75
Morrow	14,824	33.65	498,828	95	2	15.	30	80
Muskingum	5,254	27.40	143,960	98	16	12.	192	80
Noble	2,737	28.75	78,689	88	9	18.	162	90

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Oats.				Barley—Fall and Spring.			
	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.
	Acres	Bushels	Bushels	Percent	Acres	Bushels	Bushels	Percent
Ottawa	10,034	40.	401,360	88	1,239	25.	30,975	75
Paulding	15,252	40.60	619,231	89	5,296	31.80	168,413	63
Perry	1,520	27.	41,040	95	1	11.	11	100
Pickaway	3,259	36.	117,324	92	50	16.	800	80
Pike	895	30.	26,850	80	6	15.	90	80
Portage	19,377	36.	697,572	90	23	20.	460	100
Preble	19,567	44.	860,948	94	70	10.	70	70
Putnam	9,034	42.	379,428	80	2,476	18.50	45,806	83
Richland	21,797	41.	893,677	82	129	35.	4,515	60
Ross	1,254	26.	32,604	88	1	20.	20	80
Sandusky	22,455	47.	1,055,385	97	165	30.	4,950	65
Scioto	3,036	26.66	80,940	100	13	18.	234	80
Seneca	22,697	37.50	851,138	91	254	27.	6,858	85
Shelby	28,844	35.30	1,018,193	97	136	15.	2,040	80
Stark	29,253	41.34	1,209,319	94	55	22.	1,210	100
Summit	18,110	36.66	663,913	82	1	20.	20	100
Trumbull	21,139	41.65	880,439	94	13	15.	195	90
Tuscarawas	19,081	34.07	650,090	83	6	20.	120	90
Union	13,393	42.	562,506	95	160	30.	4,800	100
Van Wert	14,756	33.	486,948	90	2,521	25.	63,025	75
Vinton	798	20.40	16,279	95	....	....	....	....
Warren	8,320	30.	249,600	78	222	15.	3,330	70
Washington	6,139	25.	153,475	100	5	20.	100	90
Wayne	26,279	45.83	1,204,367	91	83	15.	1,245	86
Williams	24,858	40.	994,320	93	2,170	27.50	59,675	90
Wood	35,161	45.	1,582,245	94	2,932	36.	96,552	90
Wyandot	14,082	43.67	614,961	95	35	10.	350	80
Average	....	38.6	....	88	....	27.4	....	83
Totals	1,185,677	....	45,866,988	....	29,410	....	796,224	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Rye.			
	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.
	Acres	Bushels	Bushels	Percent
Adams	348	15.	5,220	97
Allen	194	10.	1,940	100
Ashland	161	12.	1,932	90
Ashtabula	327	12.50	4,088	85
Athens	36	15.	540	90
Auglaize	148	15.	2,220	80
Belmont	118	16.	1,888	90
Brown	785	17.33	13,604	97
Butler	148	15.	2,220	90
Carroll	85	11.	935	100
Champaign	296	31.	9,176	100
Clark	530	40.	21,200	90
Clermont	1,165	15.60	18,174	98
Clinton	213	16.33	3,478	92
Columbiana	174	11.95	2,079	85
Coshocton	251	10.	2,510	85
Crawford	22	10.	220	88
Cuyahoga	464	12.50	5,800	90
Darke	495	16.50	8,168	96
Defiance	257	13.33	3,426	98
Delaware	101	17.	1,717	77
Erie	426	15.	6,390	100
Fairfield	159	11.	1,749	80
Fayette	88	11.	968	93
Franklin	399	12.	4,788	90
Fulton	344	20.	6,880	75
Gallia	61	12.	732	85
Geauga	21	8.	168	75
Greene	212	12.	2,544	88
Guernsey	128	9.	1,152	88
Hamilton	560	15.	8,400	90
Hancock	286	13.67	3,910	63
Hardin	229	9.	2,061	63
Harrison	45	15.	675	100
Henry	3,029	18.50	56,037	85
Highland	474	11.66	5,527	93
Hocking	83	15.	1,245	90
Holmes	51	10.	510	56
Huron	108	23.33	2,520	93
Jackson	108	10.	1,080	65
Jefferson	58	39.	2,262	90
Knox	234	13.50	3,159	68
Lake	354	20.	7,080	100
Lawrence	72	14.	1,008	80
Licking	522	14.17	7,397	92
Logan	410	22.50	9,225	83
Lorain	44	17.50	770	100
Lucas	859	22.	18,898	75
Madison	261	15.50	4,045	88
Mahoning	79	14.33	1,132	80
Marion	42	7.	294	82
Medina	172	14.66	2,522	88
Meigs	76	16.	1,216	92
Mercer	287	15.	4,305	80
Miami	106	8.50	901	95
Monroe	175	16.	2,800	100
Montgomery	95	14.	1,330	100
Morgan	21	8.	168	70
Morrow	128	13.50	1,728	90
Muskingum	262	16.67	4,368	97
Noble	32	12.50	400	75

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Rye.			
	Area as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product.	Quality compared with an average.
	Acres	Bushels	Bushels	Percent
Ottawa	313	22.	6,886	100
Paulding	1,296	25.02	32,426	98
Perry	91	14.50	1,320	83
Pickaway	278	22.33	6,208	95
Pike	116	11.	1,276	90
Portage	148	20.	2,960	96
Preble	241	16.	3,856	95
Putnam	377	23.50	8,860	85
Richland	153	10.	1,530	95
Ross	159	17.33	2,755	92
Sandusky	229	23.33	5,348	92
Scioto	82	18.	1,476	75
Seneca	38	12.50	475	87
Shelby	530	20.	10,600	91
Stark	171	16.50	2,822	100
Summit	212	12.	2,544	60
Trumbull	139	7.	973	83
Tuscarawas	115	12.15	1,397	96
Union	138	18.	2,484	80
Van Wert	701	15.	10,515	100
Vinton	39	12.	468	97
Warren	513	16.	8,208	85
Washington	88	16.	1,408	100
Wayne	85	18.	1,530	90
Williams	175	30.	5,250	100
Wood	421	16.25	6,841	82
Wyandot	106	11.	1,166	85
Average	....	17.4	....	88
Totals	24,372	....	424,456	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.			Potatoes.	Tobacco.	Pastures	Apples.
	Prospect compared with an average.	Cut up for fodder.	Date of cutting for fodder—days after September 1.	Yield compared with an average.	Condition compared with an average.	Condition compared with an average.	Prospect compared with an average.
	Pct.	Pct.	Days	Pct.	Pct.	Pct.	Pct.
Adams	75	95	1	60	89	55	18
Allen	110	90	18	100	......	50	20
Ashland	97	94	14	77	......	93	45
Ashtabula	92	52	14	77	......	73	89
Athens	80	80	11	71	......	72	43
Auglaize	93	87	11	30	......	85	18
Belmont	85	93	7	59	90	44	43
Brown	82	73	15	62	88	52	33
Butler	105	67	15	95	80	85	5
Carroll	94	76	14	65	......	90	66
Champaign	100	93	7	62	100	80	45
Clark	96	89	3	44	100	72	18
Clermont	105	87	17	92	100	87	22
Clinton	98	80	6	70	98	64	14
Columbiana	103	96	17	71	......	89	56
Coshocton	83	98	13	59	......	80	62
Crawford	99	80	25	70	......	98	92
Cuyahoga	100	68	13	70	......	79	56
Darke	99	69	7	94	91	72	28
Defiance	84	80	8	84	......	97	52
Delaware	84	98	12	47	70	81	48
Erie	108	80	10	97	......	97	90
Fairfield	86	98	14	44	100	55	39
Fayette	100	95	9	63	......	68	15
Franklin	89	92	6	41	......	49	31
Fulton	100	60	10	80	......	78	100
Gallia	88	97	15	77	100	83	47
Geauga	96	50	18	75	......	78	64
Greene	94	93	6	58	80	54	5
Guernsey	81	95	11	62	......	40	50
Hamilton	100	90	15	100	......	100	......
Hancock	103	93	6	75	......	95	55
Hardin	107	91	14	63	......	70	38
Harrison	80	98	10	63	......	61	39
Henry	93	75	2	83	80	98	53
Highland	99	85	14	59	81	63	13
Hocking	105	95	3	50	......	85	20
Holmes	87	60	4	57	......	55	50
Huron	104	83	17	90	......	74	68
Jackson	78	93	11	70	......	47	52
Jefferson	75	81	15	56	......	53	34
Knox	91	96	12	55	......	81	73
Lake	100	70	13	65	......	80	97
Lawrence	90	95	5	90	85	80	15
Licking	83	88	6	54	......	63	55
Logan	101	97	11	48	......	75	13
Lorain	98	72	14	78	......	89	100
Lucas	98	80	10	87	......	72	78
Madison	91	79	6	46	......	66	33
Mahoning	109	81	16	78	......	88	69
Marion	95	86	10	61	......	78	61
Medina	108	84	15	96	105	91	70
Meigs	90	98	14	73	80	80	42
Mercer	105	92	19	95	90	62	52
Miami	103	65	13	72	85	60	20
Monroe	105	95	10	80	100	85	40
Montgomery	90	90	10	72	80	90	40
Morgan	96	87	11	56	75	75	22
Morrow	95	84	14	46	......	88	71
Muskingum	76	100	14	41	......	58	59
Noble	79	93	8	60	88	94	26
Ottawa	100	50	15	68	75	50	45

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.			Potatoes.	Tobacco.	Pastures.	Apples.
	Prospect compared with an average.	Cut up for fodder.	Date of cutting for fodder—days after September 1.	Yield compared with an average.	Condition compared with an average.	Condition compared with an average.	Prospect compared with an average.
	Pct.	Pct.	Days	Pct.	Pct.	Pct.	Pct.
Paulding	90	68	6	78	......	94	51
Perry	94	99	7	42	......	76	23
Pickaway	97	87	10	73	......	69	17
Pike	73	70	15	60	80	58	13
Portage	98	88	18	74	......	89	82
Preble	101	48	16	90	93	97	15
Putnam	93	87	3	75	......	63	33
Richland	98	90	8	69	......	90	90
Ross	85	85	8	57	70	81	19
Sandusky	87	78	12	76	......	64	58
Scioto	92	88	10	66	......	70	43
Seneca	97	97	12	77	80	66	56
Shelby	110	92	12	91	98	96	22
Stark	99	86	14	74	......	69	49
Summit	90	68	19	80	......	83	82
Trumbull	95	76	15	81	......	63	68
Tuscarawas	103	97	14	54	......	77	64
Union	106	95	13	45	......	70	55
Van Wert	100	100	20	100	......	......	100
Vinton	90	98	14	70	......	77	20
Warren	100	56	18	88	97	74	10
Washington	99	100	6	91	......	84	34
Wayne	100	79	13	71	......	79	72
Williams	105	89	13	90	......	105	50
Wood	95	61	17	71	......	65	60
Wyandot	94	96	9	69	......	83	68
Average	95	84	Sep13	70	90	74	46
Totals	......	......	......	......	......	......	......

OFFICIAL REPORT

OF THE

Ohio Department of Agriculture

ON THE

Acreage of Fall Crops, Acreage and Product of Potatoes, and the Condition of Other Crops, November 1, 1900.

The following report is based on returns received from the regular township crop correspondents of the Department. In calculating acreage of wheat and potatoes, comparison is made from area as returned by township assessors for the previous year. This is the first report of 1900 indicating the potato crop in bushels:

WHEAT—Area sown last fall as returned by township assessors	2,718,513	acres
“ Sown this fall compared with last year	79	percent
“ Estimated area seeded for the harvest of 1901	2,155,920	acres
“ Condition compared with an average	81	percent
“ Average date for seeding	October 2	
WINTER BARLEY—Area sown compared with last year	76	percent
“ Condition compared with an average	88	“
RYE—Area sown compared with last year	109	“
“ Condition compared with an average	91	“
CORN—Prospect compared with an average	96	“
BUCKWHEAT—Prospect compared with an average	77	“
CLOVER SEED—Prospect compared with an average	43	“
POTATOES—Area planted as returned by township assessors	111,799	acres
“ Product per acre	76	bushels
“ Estimated total product for 1900	8,468,250	“
“ Affected by rot	3	percent
APPLES—Product compared with an average	41	“
HOGS—Condition compared with an average	95	“
“ Number to be fattened compared with last year	88	“
COMMERCIAL FERTILIZERS—Farmers using on wheat	44	“

After the very disastrous wheat harvest it is not surprising to find the estimated wheat area seeded this fall, for next year's harvest, to be considerably reduced as compared with the area put in last fall, the estimate being but 79 percent, or a shortage as compared with last fall's seeding of 562,593 acres, and based on a fair average product per acre, this would represent about 8,000,000 bushels of wheat. The long continued dry, warm weather has been very propitious for the preservation of fly, and farmers long delayed seeding, in the hope of avoiding the pest, and many finally abandoned wheat seeding for fear of destruction by this insect that was being so comfortably nursed by the favorable weather conditions. Most of the wheat went in very much later than usual, and at this date, November 1, a great portion is not up and, because of this fact, condition can not be estimated on the total area seeded. The earlier sown wheat that is up, is being worked upon by the fly, in many localities to a very considerable extent. Reports indicate that in the late sown wheat, the plant is not being so much affected by fly, and frost may destroy the pest before it can get fairly to work on this. The affected early sown wheat and the tender late sown, places the crop, for the State, in poor condition for going into winter, and with this condition a severe winter would work much damage. By reason of some of the conditions here referred to, a low wheat estimate is reported.

The acreage of winter barley is fair as compared with an average. Very much the greater portion of the crop in Ohio is of spring seeding.

Rye shows an estimated area of 109 percent as compared with an average. In many counties the increase is above 25 percent and as high as 50 percent, which very great increase is occasioned by farmers sowing much less wheat than usual. The plant shows a very fair condition at this time.

Corn has matured well and is being husked and cribbed in fine dry condition. The prospect generally indicates a large product, though some few correspondents report the crop as not husking out as well as was anticipated.

The potato crop will be small, as indicated in former reports. In some localities the crop is almost a failure, yet for the State the total estimate is 8,468,250 bushels on an area of 111,799 acres, as against 9,203,633 bushels for the crop of 1899, which was also very much below a fair average one. Rot to a greater or less extent is reported from seventy-one counties. There has not been a full potato crop since 1896, when the area was 153,362 acres and the product 12,906,134 bushels. Since that year area and product have declined, the present showing the lowest since 1896.

Clover Seed is less than half a crop as compared with an average. Only thirty counties report above 50 percent, while many show below 20 percent. The crop is very unevenly distributed.

Corn being plenty, hogs are fattening nicely and the number compares favorably with last year.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON ACREAGE OF FALL CROPS, ACREAGE AND PRODUCT OF POTATOES AND THE CONDITION OF OTHER CROPS, NOVEMBER 1, 1900.

Counties.	Wheat.					
	Area sown last fall, as returned by township assessors.	Sown this fall, compared with last year.	Estimated area seeded for the harvest of 1901.	Condition compared with an average.	When sown, days after September 1.	Condition of soil at time of seeding.
	Acres	Pct.	Acres	Pct.	Days	
Adams	26,241	74	19,418	62	40	fair
Allen	35,915	95	34,119	98	29	good
Ashland	30,032	85	25,527	73	25	“
Ashtabula	13,565	67	9,089	74	26	“
Athens	11,421	90	10,279	78	46	fair
Auglaize	42,370	92	38,983	92	33	“
Belmont	24,873	65	16,167	75	32	good
Brown	28,901	62	17,919	86	40	fair
Butler	55,520	90	49,968	87	38	“
Carroll	17,712	81	14,347	70	20	“
Champaign	49,001	70	34,301	90	30	good
Clark	36,762	74	27,195	89	35	fair
Clermont	21,339	77	16,431	87	38	“
Clinton	43,071	60	25,843	78	40	good
Columbiana	23,711	97	23,000	96	25	fair
Coshocton	29,799	76	22,647	75	35	good
Crawford	31,080	87	27,040	91	21	“
Cuyahoga	10,585	72	7,621	92	28	“
Darke	71,793	76	54,563	90	33	“
Defiance	29,574	78	23,068	65	30	fair
Delaware	28,275	81	22,903	71	38	good
Erie	19,934	75	14,950	89	36	“
Fairfield	43,524	84	36,560	86	38	“
Fayette	49,263	65	33,021	97	40	“
Franklin	42,971	73	31,369	84	33	“
Fulton	24,734	85	21,024	75	37	fair
Gallia	23,694	89	21,088	75	27	“
Geauga	9,281	85	7,889	77	30	good
Greene	49,664	94	46,884	60	40	“
Guernsey	19,240	68	13,083	67	30	fair
Hamilton	15,086	70	10,560	78	30	good
Hancock	41,250	86	35,475	95	30	“
Hardin	34,864	88	30,680	97	30	“
Harrison	12,723	82	10,433	69	34	fair
Henry	42,628	90	38,365	92	27	“
Highland	39,178	61	23,899	63	40	“
Hocking	15,289	60	9,173	75	40	“
Holmes	27,079	80	21,663	85	31	“
Huron	36,476	79	28,916	75	25	good
Jackson	15,302	82	12,548	82	45	fair
Jefferson	14,813	84	12,443	76	26	“
Knox	36,485	90	32,830	90	25	good
Lake	5,053	100	5,053	88	31	“
Lawrence	11,645	63	7,336	52	38	fair
Licking	44,488	74	32,921	80	28	“
Logan	47,223	78	36,834	92	22	good
Lorain	23,249	69	16,042	80	33	“
Lucas	13,578	81	10,998	86	26	fair
Madison	28,352	53	15,027	85	37	good
Mahoning	15,385	90	13,846	100	18	“
Marion	29,746	80	23,797	86	25	“
Medina	25,442	99	25,188	82	23	“
Meigs	20,584	97	19,967	89	30	“
Mercer	36,605	63	23,061	90	25	fair
Miami	51,997	80	41,598	94	28	good
Monroe	22,967	75	16,225	80	32	“
Montgomery	45,475	88	40,018	90	35	fair
Morgan	15,202	72	10,945	68	42	good
Morrow	24,644	88	21,687	71	23	“

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.					
	Area sown last fall, as returned by township assessors.	Sown this fall, compared with last year.	Estimated area seeded for the harvest of 1901.	Condition compared with an average.	When sown, days after September 1.	Condition of soil at time of seeding.
	Acres	Pct.	Acres	Pct.	Days	
Muskingum	33,292	74	24,636	71	36	good
Noble	16,200	74	11,988	75	35	"
Ottawa	20,590	70	14,413	85	30	"
Paulding	23,648	83	19,628	82	33	fair
Perry	19,505	72	14,044	53	37	fair
Pickaway	58,274	78	45,454	64	45	good
Pike	19,257	60	11,564	70	45	"
Portage	21,347	92	19,639	84	24	fair
Preble	51,326	71	36,441	90	37	good
Putnam	51,583	77	39,719	77	25	"
Richland	38,453	97	37,299	82	22	"
Ross	41,475	78	32,350	63	49	"
Sandusky	41,278	61	25,301	88	33	"
Scioto	21,475	96	20,616	90	46	fair
Seneca	58,064	78	45,290	90	27	good
Shelby	50,044	77	38,534	90	28	"
Stark	48,306	97	46,857	94	19	"
Summit	27,152	90	24,437	93	21	"
Trumbull	15,261	89	13,582	84	24	fair
Tuscarawas	29,953	79	23,663	82	30	good
Union	33,971	86	29,215	95	31	"
Van Wert	33,642	85	28,596	95	34	"
Vinton	9,321	60	5,593	49	48	fair
Warren	33,350	65	21,677	88	45	good
Washington	30,179	80	24,143	72	49	fair
Wayne	53,300	90	47,970	87	31	good
Williams	24,660	81	19,975	70	32	fair
Wood	43,415	69	28,956	80	32	good
Wyandot	33,539	91	30,520	96	31	"
Average	....	79	....	81	Oct. 2	......
Total	2,718,513	......	2,155,920	......	......	......

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Winter Barley.		Rye.		Corn.	Buck-wheat.	Clover Seed.
	Acreage sown, compared with last year	Condition, compared with an average.	Acreage sown, compared with last year.	Condition, compared with an average.	Prospect, compared with an average.	Prospect, compared with an average.	Prospect, compared with an average.
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Adams	......	......	100	80	90	......	60
Allen	......	......	105	98	105	100	15
Ashland	......	......	100	100	98	......	23
Ashtabula	......	......	88	80	95	78	50
Athens	......	......	95	90	95	......	35
Auglaize	......	......	105	85	105	......	10
Belmont	......	......	70	87	98	......	25
Brown	......	......	90	86	90	70	43
Butler	75	80	......	......	102	......	87
Carroll	......	......	100	93	90	100	10
Champaign	......	......	120	100	100	......	25
Clark	......	......	130	97	105	70	17
Clermont	......	......	115	87	105	100	38
Clinton	......	......	120	90	98	97	49
Columbiana	......	......	99	99	100	73	49
Coshocton	......	......	100	62	90	60	35
Crawford	60	75	130	91	93	80	25
Cuyahoga	......	......	115	97	104	60	14
Darke	5	100	150	99	108	50	27
Defiance	......	......	106	98	95	78	101
Delaware	......	......	102	87	90	85	57
Erie	......	......	105	100	106	98	60
Fairfield	......	......	150	100	90	......	83
Fayette	......	......	125	100	98	......	58
Franklin	......	......	107	91	90	72	57
Fulton	......	......	......	......	90	75	90
Gallia	90	100	85	66	88	40	70
Geanga	60	75	108	100	104	72	75
Greene	......	......	110	75	95	......	60
Guernsey	75	80	96	87	75	63	50
Hamilton	......	......	130	90	110	50	80
Hancock	......	......	102	98	100	100	22
Hardin.	......	......	90	97	100	75	50
Harrison	......	......	100	75	90	80	25
Henry	......	......	82	93	107	60	77
Highland	......	......	140	83	98	50	41
Hocking	......	......	150	100	100	......	50
Holmes	......	......	105	90	105	80	35
Huron	......	......	190	98	105	80	53
Jackson	......	......	95	90	93	......	......
Jefferson	90	90	93	92	90	75	24
Knox	......	......	112	96	90	87	10
Lake	......	......	100	100	93	......	52
Lawrence	75	77	100	80	90	70	62
Licking	105	100	100	92	81	65	48
Logan	90	95	98	98	100	82	18
Lorain	......	......	92	95	98	60	56
Lucas	......	......	96	75	104	75	65
Madison	......	......	122	100	93	......	58
Mahoning	......	......	90	95	101	87	20
Marion	......	......	90	100	98	80	38
Medina	......	......	78	89	90	80	62
Meigs	......	......	85	89	90	80	62
Mercer	......	......	113	93	105	100	75
Miami	50	88	104	93	98	70	24
Monroe	......	......	100	90	99	88	58
Montgomery	80	75	100	90	94	......	55
Morgan	......	......	104	76	90	78	29
Morrow	......	......	95	83	95	92	29
Muskingum	......	......	108	95	76	90	87

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Winter Barley.		Rye.		Corn.	Buck-wheat.	Clover Seed.
	Acreage sown, compared with last year	Condition, compared with an average.	Acreage sown, compared with last year.	Condition, compared with an average.	Prospect, compared with an average.	Prospect, compared with an average.	Prospect, compared with an average.
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Noble	......	......	86	100	85	68	60
Ottawa	95	96	123	88	103	75	60
Paulding	......	......	85	85	88	100	32
Perry	......	......	125	78	85	50	32
Pickaway	......	......	122	65	88	100	61
Pike	......	......	105	80	80	67	46
Portage	......	......	150	100	96	78	46
Preble	......	......	160	100	106	100	54
Putnam	......	......	80	95	98	......	27
Richland	......	......	100	80	90	50	10
Ross	......	......	129	83	80	57	41
Sandusky	......	......	109	92	98	......	40
Scioto	......	......	......	......	85	......	25
Seneca	87	98	98	95	97	72	59
Shelby	......	......	107	100	110	83	6
Stark	......	......	100	100	96	80	37
Summit	......	......	......	......	100	75	25
Trumbull	90	90	101	94	98	79	35
Tuscarawas	......	......	150	97	101	85	16
Union	......	......	100	100	104	......	5
Van Wert	......	......	95	95	105	90	40
Vinton	......	......	148	74	95	100	16
Warren	......	......	143	92	97	......	50
Washington	......	......	100	100	95	75	23
Wayne	......	......	98	85	102	85	45
Williams	......	......	105	98	95	77	86
Wood	95	95	154	98	108	75	76
Wyandot	......	......	88	102	93	100	45
Average	76	88	109	91	96	77	43

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Potatoes.				Apples.	Hogs.		Commercial Fertilizers.
	Area planted, as returned by township assessors.	Product per acre.	Estimated total product for 1900.	Affected by rot.	Product compared with an average.	Condition compared with an average.	Number to be fattened compared with last year.	Farmers using on wheat.
	Acres	Bu.	Bushels	Pct.	Pct.	Pct.	Pct.	Pct.
Adams	178	68	12,144	4	12	88	83	56
Allen	818	58	47,444	3	30	98	98	2
Ashland	965	73	70,445	6	55	100	96	63
Ashtabula	3,383	95	321,385	1	77	95	90	73
Athens	334	79	26,386	2	39	97	89	86
Auglaize	886	75	66,450	2	15	97	79	1
Belmont	1,012	58	58,696	1	42	98	85	48
Brown	423	46	19,458	4	41	97	85	64
Butler	1,015	95	96,425	2	25	100	85	......
Carroll	560	34	19,040	6	50	85	80	76
Champaign	408	60	24,480	......	15	100	100	25
Clark	838	45	37,710	......	10	89	90	15
Clermont	770	62	47,740	3	40	100	95	65
Clinton	457	61	27,877	3	10	95	93	29
Columbiana	1,907	69	130,583	4	37	101	90	64
Coshocton	985	63	62,055	3	61	96	80	34
Crawford	1,480	66	97,680	8	71	91	79	43
Cuyahoga	6,876	73	501,948	1	53	100	92	90
Darke	1,332	80	106,560	5	17	95	97	8
Defiance	1,167	83	96,861	1	32	95	89	......
Delaware	520	68	35,360	2	30	99	85	37
Erie	3,382	100	3,382	1	91	96	90	41
Fairfield	1,207	64	77,248	1	20	90	90	55
Fayette	58	50	2,900	1	22	100	90	57
Franklin	1,522	33	50,226	3	25	90	70	26
Fulton	2,225	75	166,875	1	80	90	82	1
Gallia	227	57	12,939	6	29	90	81	75
Geauga	3,229	98	316,442	......	67	100	98	66
Greene	461	50	23,050	......	5	90	90	30
Guernsey	507	24	12,168	4	40	95	85	83
Hamilton	3,240	125	405,000	......	12	100	98	5
Hancock	1,231	68	83,708	5	26	85	79	18
Hardin	910	90	81,900	3	43	100	102	3
Harrison	317	40	12,680	1	42	95	80	68
Henry	1,096	78	85,488	......	45	100	98	......
Highland	312	55	17,160	7	11	94	88	65
Hocking	722	100	72,200	......	50	100	96	90
Holmes	734	66	48,444	10	72	89	90	48
Huron	1,475	107	157,825	2	68	98	94	78
Jackson	261	60	15,660	......	33	91	89	95
Jefferson	563	72	40,536	1	28	96	85	54
Knox	516	55	28,380	5	77	100	91	56
Lake	2,032	75	152,400	......	57	95	97	45
Lawrence	321	85	27,285	4	30	88	77	8
Licking	1,369	55	75,295	1	50	95	90	88
Logan	543	64	34,752	4	24	98	81	13
Lorain	1,971	82	141,622	......	85	97	81	76
Lucas	2,896	95	285,120	2	64	97	96	4
Madison	362	82	29,684	......	42	100	88	......
Mahoning	1,903	92	175,076	4	75	100	95	81
Marion	837	60	50,220	8	41	96	85	7
Medina	2,352	110	258,720	2	47	91	88	98
Meigs	595	60	35,700	7	39	99	96	80
Mercer	616	128	78,848	......	53	80	75	8
Miami	855	60	51,300	4	11	96	76	14
Monroe	1,316	73	96,068	8	43	95	89	58
Montgomery	1,319	65	85,735	8	40	95	95	28
Morgan	426	45	19,170	4	18	95	80	80
Morrow	929	81	75,249	1	61	93	84	75

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Potatoes.				Apples.	Hogs.		Commercial Fertilizers.
	Area planted, as returned by township assessors.	Product per acre.	Estimated total product for 1900.	Affected by rot.	Product compared with an average.	Condition compared with an average.	Number to be fattened compared with last year.	Farmers using on wheat.
	Acres	Bu.	Bushels	Pct.	Pct.	Pct.	Pct.	Pct.
Muskingum	746	55	41,030	1	41	99	81	73
Noble	654	67	43,818	2	31	98	98	43
Ottawa	542	84	45,528	1	55	90	88	4
Paulding	615	103	63,345	......	30	85	88	2
Perry	725	53	38,425	2	20	93	69	92
Pickaway	400	54	21,600	1	14	90	85	12
Pike	607	78	47,346	5	12	99	80	75
Portage	7,557	83	627,231	......	88	99	80	90
Preble	564	84	47,376	1	16	100	90	76
Putnam	968	87	84,216	......	45	95	82	2
Richland	1,767	72	127,224	8	67	95	82	52
Ross	526	56	29,456	4	11	96	87	56
Sandusky	1,917	89	170,613	1	66	80	75	4
Scioto	905	78	70,590	3	25	95	95	68
Seneca	1,540	85	130,900	2	67	70	70	35
Shelby	750	67	50,250	......	12	100	83	38
Stark	3,687	100	368,700	4	57	94	87	53
Summit	2,866	110	31,526	2	67	78	76	54
Trumbull	3,286	115	377,890	......	71	98	92	80
Tuscarawas	1,933	64	123,712	2	41	99	89	37
Union	245	40	9,800	......	47	100	99	5
Van Wert	835	98	81,830	3	50	100	93	......
Vinton	313	73	22,849	4	21	99	93	93
Warren	449	77	34,573	......	10	100	100	27
Washington	1,417	54	76,518	9	25	101	95	85
Wayne	2,796	69	192,924	2	70	97	94	70
Williams	1,067	79	84,293	1	56	92	85	10
Wood	1,130	68	76,840	1	34	94	93	4
Wyandot	841	65	54,665	2	62	98	96	8
Average	....	76	....	3	41	95	88	44
Total	111,799	......	8,468,250	......	......	......	......	......

OFFICIAL REPORT

OF THE

Ohio Department of Agriculture

ON THE

Product of Corn and Potatoes and the Condition of Other Crops, December 1, 1900.

The following estimates are made from the reports received from the regular township crop correspondents of the Department, and represent conditions December 1:

WHEAT—Condition compared with an average	81 percent
" Crop of 1900 sold as soon as threshed	30 "
" Damage to growing crop by Hessian fly	14 "
" Damage to growing crop by white grub worm	3 "
CORN—Area planted in 1900	3,146,574 acres
Estimated average yield per acre	38 bushels
Total estimated product for 1900	121,334,440 "
Put into silo	2 percent
Average date cribbing began	October 10
CLOVER—Area sown in 1900 cut for seed	16 percent
" Average yield of seed per acre	1.46 bushels
APPLES—Total yield compared with an average	42 percent
POTATOES—Area planted in 1900	112,799 acres
" Estimated average yield per acre	76 bushels
" Total estimated product for 1900	8,608,867 "
TOBACCO—Average product per acre	791 pounds
CATTLE—Being fed for spring market compared with last year	81 percent
SHEEP—Being fed for mutton compared with last year	81 "

The great majority of counties in the state report that the growing wheat is infested with Hessian fly, the ravages of which were so destructive to the crop harvested this year. Seeding was delayed very late in the hope of avoiding the fly, but the weather continued favorable to the insect up to a very late day, and the consequence is a very low comparative area, as many fields intended for wheat were left unseeded. In counties where fly is not reported the condition of the plant shows fairly good, but in the infested counties and localities, condition is low. Wheat shows for the state a condition of 81 percent as compared with an average. The plant is small and has not the usual strength and vitality for going into winter. In its present condition, a severe winter would be productive of much damage to the growing wheat.

There is an evident increase in production of corn as compared with last year. This is the first report of the year estimating the product in bushels. The increase as compared with last year is due in a great measure to the increase in area. The product last year, as returned by township assessors, was 111,159,200 bushels. The estimated product for this year is 121,334,440 bushels. The cause of increase in area was principally due to the failure of wheat.

Potatoes, as also reported last month, have produced a low average per acre, on a decreased area as compared with last year. The crop has been low in area and product for several successive years.

The clover seed produced has been very light, in some localities almost a failure.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ON THE PRODUCT OF CORN AND POTATOES AND THE CONDITION OF OTHER CROPS, DECEMBER 1, 1900.

Counties.	Wheat.			
	Condition compared with an average.	Crop of 1900 sold as soon as threshed.	Damage to growing crop by Hessian fly.	Damage to growing crop by white grub worm.
	Percent	Percent	Percent	Percent
Adams	65	29	5	2
Allen	97	25	35	3
Ashland	91	7	15	1
Ashtabula	70	2	34	2
Athens	78	31	20	17
Auglaize	92	45	12	0
Belmont	70	38	17	3
Brown	90	23	10	2
Butler	95	42	5	2
Carroll	77	15	15	5
Champaign	93	55	3	0
Clark	84	45	32	1
Clermont	80	20	12	0
Clinton	80	12	3	2
Columbiana	99	22	9	2
Coshocton	82	27	13	6
Crawford	78	47	28	5
Cuyahoga	92	17	7	2
Darke	92	12	6	2
Defiance	75	36	26	1
Delaware	81	34	14	0
Erie	80	16	22	2
Fairfield	76	38	15	0
Fayette	81	22	31	0
Franklin	85	30	9	1
Fulton	75	37	10	0
Gallia	66	32	9	11
Geauga	79	6	34	3
Greene	75	9	16	10
Guernsey	79	5	9	6
Hamilton	71	50	11	0
Hancock	91	22	9	0
Hardin	97	25	5	0
Harrison	82	6	9	5
Henry	72	42	15	0
Highland	78	9	13	6
Hocking	78	33	12	2
Holmes	84	38	17	0
Huron	76	47	31	0
Jackson	63	18	17	9
Jefferson	80	18	16	6
Knox	70	33	23	3
Lake	81	18	13	1
Lawrence	56	74	25	12
Licking	75	20	20	3
Logan	89	63	13	3
Lorain	87	34	14	1
Lucas	90	50	15	0
Madison	91	70	8	0
Mahoning	98	4	13	0
Marion	78	42	20	1
Medina	82	26	14	2
Meigs	73	38	9	11
Mercer	82	0	13	4
Miami	88	21	8	7
Monroe	75	10	15	10
Montgomery	88	65	8	0
Morgan	64	31	15	5
Morrow	61	28	31	1

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Wheat.			
	Condition compared with an average.	Crop of 1900 sold as soon as threshed.	Damage to growing crop by Hessian fly.	Damage to growing crop by white grub worm.
	Percent	Percent	Percent	Percent
Muskingum	72	29	13	8
Noble	88	28	21	3
Ottawa	60	75	5	0
Paulding	95	51	6	0
Perry	64	25	3	10
Pickaway	77	42	9	1
Pike	73	21	16	1
Portage	87	37	15	2
Preble	92	0	2	3
Putnam	86	55	12	0
Richland	73	38	29	7
Ross	70	52	15	3
Sandusky	86	32	13	0
Scioto	73	30	5	20
Seneca	82	40	8	3
Shelby	100	0	8	0
Stark	93	19	6	0
Summit	79	28	19	5
Trumbull	89	24	26	5
Tuscarawas	91	8	16	2
Union	97	54	4	1
Van Wert	87	12	17	0
Vinton	44	27	12	2
Warren	81	2	8	1
Washington	72	39	10	14
Wayne	84	28	14	1
Williams	82	25	7	0
Wood	72	65	22	1
Wyandot	92	39	11	0
Average	81	30	14	3

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.				
	Area planted in 1900.	Estimated average yield per acre.	Total estimated product for 1900.	Put into silo.	Date cribbing began, days after October 1.
	Acres	Bu.	Bushels	Per ct.	Days
Adams	37,783	23	869,009	1	14
Allen	37,730	40	1,509,200	0	7
Ashland	22,368	37	827,616	0	5
Ashtabula	12,043	40	481,720	14	9
Athens	12,142	32	388,544	0	5
Auglaize	49,948	46	2,297,608	0	8
Belmont	22,752	35	796,320	4	11
Brown	56,398	33	1,861,134	1	23
Butler	52,731	41	2,161,971	0	15
Carroll	13,630	37	504,310	0	1
Champaign	59,839	41	2,453,399	0	13
Clark	57,682	49	2,826,418	3	9
Clermont	35,084	33	1,157,772	2	20
Clinton	61,105	39	2,383,095	1	5
Columbiana	17,681	36	636,516	5	8
Coshocton	23,543	34	800,462	0	21
Crawford	33,832	36	1,217,952	1	12
Cuyahoga	10,363	39	404,157	15	7
Darke	103,774	48	4,981,152	0	5
Defiance	28,215	41	1,156,815	0	15
Delaware	39,272	33	1,295,976	3	9
Erie	17,431	43	749,533	0	19
Fairfield	55,157	37	2,040,809	0	18
Fayette	75,847	38	2,882,186	0	13
Franklin	71,901	36	2,588,436	1	16
Fulton	28,914	48	1,387,872	1	1
Gallia	23,853	25	596,325	0	17
Geauga	9,511	45	427,995	4	8
Greene	63,691	36	2,292,876	1	1
Guernsey	18,686	23	429,778	0	18
Hamilton	13,604	33	448,932	1	7
Hancock	53,645	42	2,253,090	0	8
Hardin	40,107	42	1,684,494	0	19
Harrison	11,964	31	370,884	3	18
Henry	55,108	42	2,314,536	0	5
Highland	53,470	36	1,924,920	0	14
Hocking	16,138	32	516,416	0	12
Holmes	18,437	38	700,606	1	10
Huron	30,310	44	1,333,640	1	9
Jackson	15,425	22	339,350	0	21
Jefferson	12,650	41	518,650	4	15
Knox	41,194	32	1,318,208	0	7
Lake	5,206	37	192,622	9	6
Lawrence	16,891	37	624,967	6	10
Licking	49,903	30	1,497,090	0	10
Logan	53,418	40	2,136,720	0	7
Lorain	20,017	39	780,663	1	13
Lucas	18,597	37	688,089	5	12
Madison	91,837	40	3,673,480	0	6
Mahoning	13,452	36	484,272	6	10
Marion	44,524	41	1,825,484	1	10
Medina	20,368	33	672,144	5	8
Meigs	14,544	33	479,952	0	10
Mercer	51,792	46	2,382,432	0	1
Miami	52,589	43	2,261,327	1	2
Monroe	18,898	40	755,920	0	10
Montgomery	49,483	45	2,226,735	0	8
Morgan	14,296	35	500,360	0	13
Morrow	27,211	28	761,908	0	3
Muskingum	30,235	28	846,580	0	12

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Corn.				
	Area planted in 1900.	Estimated average yield per acre.	Total estimated product for 1900.	Put into silo.	Date cribbing began, days after October 1.
	Acres	Bu.	Bushels	Per ct.	Days
Noble	15,667	27	423,009	0	10
Ottawa	20,957	32	670,624	0	1
Paulding	44,979	42	1,889,118	0	10
Perry	17,130	35	599,550	0	12
Pickaway	79,773	38	3,031,374	1	9
Pike	31,905	27	861,435	0	12
Portage	14,641	34	497,794	10	6
Preble	56,841	46	2,614,686	0	13
Putnam	57,610	46	2,650,060	10	4
Richland	28,384	44	1,248,896	0	7
Ross	59,023	31	1,829,713	0	21
Sandusky	45,037	43	1,936,591	0	5
Scioto	24,199	40	967,960	0	20
Seneca	45,952	42	1,929,984	0	9
Shelby	53,130	44	2,337,720	0	9
Stark	30,042	41	1,231,722	0	4
Summit	18,157	37	671,809	12	12
Trumbull	15,125	40	605,000	7	7
Tuscarawas	21,009	37	777,333	4	16
Union	51,675	37	1,911,975	1	9
Van Wert	51,523	32	1,648,736	2	1
Vinton	10,749	27	290,223	0	7
Warren	45,750	36	1,647,000	1	17
Washington	19,062	31	590,922	0	11
Wayne	36,456	43	1,567,608	3	13
Williams	26,650	45	1,199,250	0	10
Wood	79,814	39	3,112,746	1	10
Wyandot	37,115	45	1,670,175	0	8
Average	....	38	....	2	Oct. 10
Total	3,146,574	....	121,334,440	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Clover.		Apples.	Potatoes.		
	Area sown in 1900 cut for seed.	Average yield of seed per acre.	Total yield, compared with an average.	Area planted in 1900.	Average yield per acre.	Total estimated product for 1900.
	Per Cent	Bushels.	Per Cent	Acres.	Bushels.	Bushels.
Adams	9	.94	14	178	71	12,638
Allen	7	2.00	28	818	50	40,900
Ashland	20	.87	85	965	67	64,656
Ashtabula	15	1.00	69	3,383	92	311,236
Athens	2	1.00	37	334	53	17,702
Auglaize	0	....	27	886	92	81,512
Belmont	2	1.50	23	1,012	52	52,624
Brown	13	1.42	35	423	47	19,881
Butler	5	1.50	5	1,015	72	73,080
Carroll	3	1.50	52	560	60	33,600
Champaign	8	1.00	29	408	38	15,504
Clark	9	1.50	10	838	46	38,548
Clermont	3	2.00	9	770	49	37,730
Clinton	16	1.25	8	457	57	26,049
Columbiana	4	1.40	48	1,907	59	112,513
Coshocton	8	.81	57	985	58	57,130
Crawford	19	1.42	70	1,480	81	119,880
Cuyahoga	1	.75	52	6,876	63	433,188
Darke	10	1.61	19	1,332	69	91,908
Defiance	81	1.50	32	1,167	93	108,531
Delaware	6	1.12	35	520	41	21,320
Erie	25	1.16	62	3,382	97	328,054
Fairfield	33	1.53	16	1,207	47	56,729
Fayette	13	1.37	6	58	42	2,436
Franklin	32	1.50	32	1,522	36	54,792
Fulton	55	1.25	73	2,225	90	200,250
Gallia	3	2.00	38	227	90	20,430
Geauga	3	2.50	66	3,229	90	290,610
Greene	10	1.50	7	461	40	18,440
Guernsey	10	1.75	42	507	27	13,689
Hamilton	8	2.50	12	3,240	107	346,680
Hancock	15	1.16	34	1,231	62	76,322
Hardin	1	.50	30	910	67	60,970
Harrison	2	1.00	49	317	61	19,337
Henry	12	1.00	55	1,096	90	98,640
Highland	25	1.50	13	312	58	18,096
Hocking	10	1.66	28	722	68	49,096
Holmes	15	.75	82	734	66	48,444
Huron	41	1.62	73	1,475	101	148,975
Jackson	0	....	20	261	105	27,405
Jefferson	18	1.08	27	563	59	33,217
Knox	4	1.82	79	516	70	36,120
Lake	4	2.50	103	2,032	70	142,240
Lawrence	3	2.50	34	321	74	23,754
Licking	18	1.14	40	1,369	59	80,771
Logan	1	2.00	27	543	59	32,037
Lorain	15	1.33	81	1,971	86	169,506
Lucas	47	2.00	82	2,896	98	283,808
Madison	5	2.00	57	362	73	26,426
Mahoning	8	2.50	93	1,903	73	138,919
Marion	12	1.11	48	837	59	49,383
Medina	5	.75	48	2,352	98	230,496
Meigs	31	3.00	48	595	95	56,525
Mercer	3	1.25	57	616	65	40,040
Miami	5	.88	16	855	56	47,880
Monroe	30	2.00	60	1,316	80	105,280
Montgomery	30	1.00	40	1,319	50	65,950
Morgan	12	1.75	13	426	50	21,300
Morrow	19	.83	55	929	93	86,397
Muskingum	2	1.25	38	746	52	38,792
Noble	4	3.00	19	654	73	47,742

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Clover.		Apples.	Potatoes.		
	Area sown in 1900 cut for seed.	Average yield of seed per acre.	Total yield, compared with an average.	Area planted in 1900.	Average yield per acre.	Total estimated product for 1900.
	Per Cent	Bushels.	Per Cent	Acres.	Bushels.	Bushels.
Ottawa	20	2.00	15	542	40	21,680
Paulding	55	1.89	46	615	89	54,735
Perry	34	1.33	20	725	34	24,650
Pickaway	34	1.39	13	400	54	21,600
Pike	26	1.58	25	607	59	35,813
Portage	7	.94	89	7,557	86	649,902
Preble	19	.96	16	564	78	43,992
Putnam	21	2.17	31	968	124	120,032
Richland	7	.83	77	1,767	60	106,020
Ross	19	1.38	11	526	31	16,306
Sandusky	10	1.40	58	1,917	71	136,107
Scioto	20	1.00	70	905	75	67,875
Seneca	22	1.14	56	1,540	69	106,260
Shelby	0	....	12	750	85	63,750
Stark	7	.75	50	3,687	91	335,517
Summit	1	1.50	64	2,866	97	278,002
Trumbull	6	1.50	62	3,286	99	325,314
Tuscarawas	6	1.75	54	1,933	60	115,980
Union	2	.75	50	245	41	10,045
Van Wert	45	1.50	50	835	75	62,625
Vinton	3	1.00	25	313	78	24,414
Warren	14	1.16	8	449	55	24,695
Washington	7	1.00	31	1,417	65	96,105
Wayne	27	.83	65	2,796	70	195,720
Williams	62	2.25	35	1,067	110	117,370
Wood	56	2.40	41	1,130	71	80,230
Wyandot	10	1.15	59	841	81	68,121
Average	16	1.46	42	....	76	....
Total	....	....	....	112,799	....	8,608,867

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Tobacco.	Cattle.	Sheep.
	Average product per acre.	Being fed for spring market, compared with last year.	Being fed for mutton, compared with last year.
	Pounds.	Per cent.	Per cent.
Adams	560	64	62
Allen	....	90	97
Ashland	....	84	87
Ashtabula	....	67	61
Athens	....	86	66
Auglaize	....	97	....
Belmont	....	80	85
Brown	900	97	90
Butler	....	97	100
Carroll	....	77	88
Champaign	500	70	55
Clark	....	116	90
Clermont	966	86	100
Clinton	850	86	74
Columbiana	....	92	91
Coshocton	....	64	58
Crawford	....	81	89
Cuyahoga	....	64	55
Darke	910	77	64
Defiance	....	92	98
Delaware	....	82	90
Erie	....	83	88
Fairfield	....	88	87
Fayette	....	87	86
Franklin	....	74	85
Fulton	....	103	90
Gallia	....	36	40
Geauga	....	86	84
Greene	300	90	100
Guernsey	....	65	77
Hamilton	700	94	92
Hancock	....	96	101
Hardin	....	100	100
Harrison	....	91	92
Henry	....	90	87
Highland	833	83	68
Hocking	....	82	75
Holmes	....	89	92
Huron	....	69	87
Jackson	....	50	42
Jefferson	....	62	67
Knox	....	85	93
Lake	....	94	100
Lawrence	200	60	52
Licking	....	67	74
Logan	....	81	78
Lorain	....	77	78
Lucas	....	100	....
Madison	....	100	100
Mahoning	....	73	73
Marion	....	84	96
Medina	1,200	77	84
Meigs	....	54	73
Mercer	....	92	97
Miami	833	93	95
Monroe	1,400	58	53
Montgomery	850	75	90
Morgan	650	58	59
Morrow	....	76	86
Muskingum	....	71	68

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE, ETC.—Continued.

Counties.	Tobacco.	Cattle.	Sheep.
	Average product per acre.	Being fed for spring market, compared with last year.	Being fed for mutton, compared with last year.
	Pounds.	Per cent.	Per cent.
Noble	1,000	73	79
Ottawa		100	80
Paulding		85	92
Perry		68	58
Pickaway		87	86
Pike	1,100	92	
Portage		84	86
Preble	805	89	98
Putnam		66	60
Richland		62	70
Ross		77	81
Sandusky		76	68
Scioto		80	
Seneca		56	59
Shelby	666	64	87
Stark		70	77
Summit		63	72
Trumbull		80	97
Tuscarawas		92	87
Union		101	94
Van Wert		100	100
Vinton		68	55
Warren	713	100	90
Washington		92	73
Wayne	666	62	58
Williams		100	100
Wood		88	95
Wyandot		81	93
Average	791	81	81

TABLE SHOWING THE ANNUAL PRODUCTION AND PRICE OF WHEAT AND CORN FOR THE YEARS 1850 TO 1900, INCLUSIVE.

Year.	Bushels of Wheat.	Average Number of Bushels Per Acre.	Price.		Bushels of Corn.	Average Number of Bushels Per Acre.	Price.	
			Range.	Average.			Range.	Average.
1850	31,500,000	18.	$0.70 to $1.10	$0.89	56,619,608	36.8	$0.24 to $0.51	$0.38
1851	25,309,225	15.2	.58 “ .78	.69	61,271,382	36.7	.30 “ .94	.38
1852	23,043,737	14.1	.59 “ .63	.60	58,165,517	33.6	.25 “ .45	.39
1853	17,118,311	12.	.60 “ .85	.73	73,436,070	40.	.37 “ .55	.42
1854	11,989,110	8.	.85 “ 1.70	1.19	52,171,551	26.	.40 “ .55	.49
1855	19,569,320	13.81	1.10 “ 2.00	1.54	87,587,434	39.7	.55 “ .80	.67
1856	15,333,837	10.2	.90 “ 1.70	1.27	57,802,515	27.7	.32 “ .63	.42
1857	25,397,614	14.	1.00 “ 1.60	1.18	82,555,186	36.6	.48 “ .80	.59
1858	17,655,483	10.4	.67 “ 1.00	.77	50,863,582	27.7	.25 “ .61	.42
1859	13,317,967	7.2	.90 “ 1.70	1.15	68,780,846	29.5	.50 “ .90	.72
1860	23,640,356	13.8	.93 “ 1.38	1.17	91,588,704	38.2	.39 “ .80	.50
1861	20,055,424	11.	.65 “ 1.12	.93	74,858,878	33.5	.28 “ .50	.34
1862	20,764,887	12.	.72 “ 1.00	.86	62,704,887	30.	.27 “ .40	.31
1863	20,452,410	11.36	.82 “ 1.30	1.04	54,614,617	27.	.35 “ .70	.53
1864	15,541,885	9.33	.95 “ 2.12	1.41	54,053,491	27.	.63 “ 1.27	1.03
1865	13,234,139	9.	1.25 “ 2.07	1.78	68,053,668	35.	.56 “ 1.29	.77
1866	5,821,747	4.5	1.75 “ 2.80	2.27	80,386,320	36.5	.45 “ .65	.54
1867	13,350,721	11.51	1.95 “ 3.50	2.79	63,875,064	29.8	.59 “ .98	.79
1868	16,480,059	11.31	1.90 “ 2.65	2.31	76,725,28[illegible]	34.4	.82 “ 1.08	.92
1869	26,499,729	15.37	1.15 “ 1.98	1.57	62,443,346	28.4	.57 “ 1.10	.73
1870	18,726,341	11.29	1.08 “ 1.33	1.15	88,565,299	37.5	.69 “ 1.05	.83
1871	22,274,378	13.27	1.10 “ 1.55	1.27	98,363,060	36.7	.50 “ .79	.56
1872	18,987,664	11.22	1.13 “ 2.08	1.58	103,058,234	40.9	.44 “ .57	.49
1873	21,974,385	12.61	1.30 “ 1.80	1.56	84,049,328	35.1	.39 “ .50	.42
1874	26,806,818	14.51	1.03 “ 1.60	1.38	101,815,494	39.8	.42 “ .75	.60
1875	17,867,967	9.22	1.03 “ 1.75	1.16	97,825,024	34.1	.58 “ .87	.72
1876	15,354,569	10.18	1.00 “ 1.50	1.10	112,552,642	36.8	.40 “ .73	.51
1877	27,306,566	15.63	1.08 “ 2.15	1.41	101,884,305	32.5	.40 “ .57	.46
1878	35,218,783	16.58	.85 “ 1.35	1.11	114,839,107	37.8	.48 “ .49	.42
1879	41,052,120	17.78	.85 “ 1.15	.96	96,908,800	34.	.31 “ .45	.37
1880	48,540,307	17.20	.93 “ 1.37	1.16	105,414,504	38.9	.42 “ .51	.42
1881	38,102,633	13.8	.88 “ 1.39	1.10	78,712,796	31.	.40 “ .87	.49
1882	42,112,103	15.59	.95 “ 1.50	1.32	90,869,137	34.	.56 “ .87	.72
1883	27,169,738	10.67	.95 “ 1.17	1.05	64,001,618	24.2	.44 “ .76	.54
1884	36,396,119	14.4	.80 “ 1.10	1.01	87,797,813	33.3	.40 “ .62	.53
1885	24,183,430	9.8	.72 “ 1.09	.89	112,192,744	39.	.37 “ .59	.47
1886	37,660,681	14.	.74 “ 1.00	.88	88,818,556	33.5	.32 “ .48	.39

TABLE SHOWING THE ANNUAL PRODUCTION AND PRICE OF WHEAT AND CORN FOR THE YEARS 1850 TO 1900, INCLUSIVE—Concluded.

Year.	Bushels of Wheat.	Average Number of Bushels Per Acre.	Price.		Bushels of Corn.	Average Number of Bushels Per Acre.	Price.	
			Range.	Average.			Range.	Average.
1887	28,400,000	10.4	.71 " .89	.80	83,118,838	30.5	.34 " .55	.40
1888	26,160,994	11.7	.71 " .96	.85	111,155,506	38.9	.44 " .61	.52
1889	31,663,448	14.6	.73 " 1.15	.93	87,838,192	32.3	.30 " .49	.37
1890	31,509,676	13.8	.75 " 1.02	.83	63,694,215	24.5	.27 " .56	.36
1891	45,063,480	17.5	.82 " 1.16	.99	86,500,000	33.	.49 " .77	.60
1892	40,254,621	14.4	.73 " 1.01	.90	80,802,958	30.8	.39 " .67	.48
1893	46,545,258	17.2	.52 " .93	.64	67,681,125	25.	.37 " .45	.42
1894	50,852,433	20.	.48 " .56	.51	70,712,925	25.	.35 " .59	.45
1895	26,520,930	11.9	.53 " .90	.66	96,263,789	33.9	.24 " .56	.41
1896	17,269,545	8.53	.55 " .97	.72	119,547,107	41.	.18 " .33	.27
1897	36,718,686	16.15	.72 " 1.00	.88	103,004,970	34.34	.22 " .34	.28
1898	41,041,671	15.56	.64 " 1.45	.87	111,214,148	37.35	.27 " .41	.34
1899	41,469,703	14.02	.68 " .77	.72	111,159,200	36.74	.29 " .40	.36
1900	10,139,187	6.00	.70 " .89	.75	121,334,440	38.00	.32¾ .47	.40

TABLE SHOWING THE AVERAGE PRODUCTION AND PRICE OF WHEAT AND CORN BY DECADES.

Decades.	Average Bushels of Wheat.	Average Bushels per Acre.	Range of Price.	Average Price.	Average Bushels of Corn.	Average Bushels per Acre.	Range of Price.	Average Price.
1850 to 1859 inclusive	20,023,460	12.29	$0 58 to $2 00	$1 00	64,920,369	33.4	$0 24 to $0 90	$0 48
1860 to 1869 "	17,584,085	10.91	60 to 3 50	1 61	68,930,426	32.	27 to 1 29	64
1870 to 1879 "	24,656,959	13.29	85 to 2 15	1 27	99,986,129	36.5	38 to 1 05	54
1880 to 1889 "	34,038,945	13.21	71 to 1 50	1 00	90,991,979	33.5	30 to 87	45
1890 to 1899 "	38,042,989	15.19	48 to 1 45	.77	89,648,770	32.	18 to 77	39

AVERAGE PRICES OF OTHER FARM PRODUCTS THAN WHEAT AND CORN IN THE LOCAL MARKETS OF OHIO FROM 1855 TO 1900, INCLUSIVE.

Year.	Barley.	Oats.	Rye.	Hay.	Potatoes.
1855	$1 35	$0 29½	$0 70	$14 71	....
1856	1 58	46	91	21 00	....
1857	58	36	58	13 46	....
1858	67	57	82	15 38	....
1859	76	43	86	17 73	....
1860	69	27	56	12 62	....
1861	60	30	48	11 85	....
1862	1 36	58	76	16 34	....
1863	1 51	78½	1 35	27 16	....
1864	1 28	52	1 16	26 00	....
1865	1 41	42	80	12 63	....
1866	1 53	57	1 28	19 76	....
1867	2 11	69	1 62	14 80	....
1868	2 37	64	1 28	16 42	....
1869	1 26	54	92	17 44	....
1870	1 00	46	91	18 45	....
1871	78	37	85	20 79	....
1872	87	36	76	22 18	....
1873	1 51	48	93	17 16	....
1874	1 41	59	1 06	20 98	....
1875	1 20	38	74	17 66	....
1876	90	37	74	11 67	$2 82
1877	52	29	59	9 86	1 44
1878	1 00	27	54	10 79	1 83
1879	89	34	82	15 87	1 16
1880	98	38	1 04	16 36	2 18
1881	1 05	50	94	17 90	3 30
1882	76	39	62	12 39	2 09
1883	76	34	62	11 63	1 47
1884	80	32	63	12 81	1 59
1885	86	30	63	12 16	1 54
1886	61	29	58	11 17	1 69
1887	81	33	62	14 79	2 74
1888	78	26	52	12 74	1 30
1889	57	27	50	10 56	1 67
1890	77	48	81	10 58	2 99
1891	70	33	85	11 25	1 45
1892	69	33	73	11 10	1 75
1893	64	32	55	12 55	2 30
1894	60	35	52	10 95	2 08
1895	56½	27	53	12 70	1 56
1896	34	20	36	12 83	85
1897	34	22	39	11 00	1 35
1898	47	27	51	8 65	1 93
1899	51	27	62	10 10	2 13
1900	....	....	....	....	....
Average	0 96	0 39	0 77	14 93	1 87

Barley, Oats and Rye are rated per bushel; Hay rated per ton; Potatoes rated per barrel.

TABULAR STATEMENT EXHIBITING THE NUMBER OF HORSES, CATTLE, MULES, SHEEP [illegible] HOGS RETURNED BY THE SEVERAL COUNTY AUDITORS, FOR THE YEARS 1899 AND 1900.

Counties.	Number of Horses.		Number of Cattle.		Number of Mules.		Number of Sheep.		Number of Hogs.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
Adams	4,503	4,622	9,716	10,384	181	190	8,784	9,068	12,243	10,346
Allen	8,225	8,727	13,640	15,177	112	102	19,193	20,707	23,517	23,449
Ashland	6,999	7,104	14,843	14,726	55	66	36,114	36,876	17,814	15,535
Ashtabula	9,370	9,038	27,478	28,448	42	35	19,188	16,575	4,684	3,661
Athens	4,543	4,170	12,099	11,217	133	119	43,879	46,086	3,837	3,444
Auglaize	7,869	8,178	14,587	15,224	133	114	11,811	12,011	25,107	25,531
Belmont	8,422	7,551	20,973	21,850	311	374	80,390	84,760	11,726	10,805
Brown	6,591	6,714	12,306	13,112	209	199	12,315	12,814	25,166	21,708
Butler	10,472	10,350	14,668	15,691	450	472	10,687	9,980	21,164	20,758
Carroll	4,390	4,407	12,785	13,248	72	63	62,660	59,301	9,805	8,276
Champaign	9,969	10,143	17,168	17,928	148	169	22,419	23,475	27,768	29,921
Clark	11,030	11,412	17,872	18,453	190	201	28,602	23,829	26,786	26,571
Clermont	6,644	7,078	9,500	10,567	546	489	7,583	7,713	17,946	16,014
Clinton	8,755	9,022	14,093	15,540	310	296	24,605	25,787	33,538	38,493
Columbiana	9,384	9,389	20,005	22,072	66	62	36,622	36,361	11,511	11,376
Coshocton	6,607	6,013	17,659	16,728	159	159	81,371	77,362	15,526	13,022
Crawford	8,232	8,391	16,018	17,348	68	69	43,769	45,257	27,651	28,801
Cuyahoga	18,729	18,158	16,142	16,631	57	49	7,022	7,119	2,176	2,047
Darke	14,552	15,044	22,213	23,039	280	287	6,753	7,754	33,879	34,228
Defiance	5,941	5,812	9,958	9,957	59	59	14,071	14,494	13,309	13,747
Delaware	7,310	6,881	15,929	16,669	57	57	44,202	44,578	23,346	21,726
Erie	5,389	5,497	7,782	7,873	16	15	12,806	12,934	5,237	6,080
Fairfield	10,019	9,669	19,474	21,365	124	130	16,925	18,443	38,008	37,733
Fayette	8,782	9,069	17,049	20,007	166	174	14,537	13,555	32,067	36,132
Franklin	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABULAR STATEMENT EXHIBITING THE NUMBER OF HORSES, ETC.—Continued.

Counties.	Number of Horses.		Number of Cattle.		Number of Mules.		Number of Sheep.		Number of Hogs.	
	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.	1900.
Hamilton	17,928	16,847	17,774	17,483	1,107	1,112	2,590	2,139	12,039	11,060
Hancock	10,200	10,225	20,698	22,223	80	83	35,355	36,400	37,999	34,126
Hardin	6,960	7,793	14,927	17,251	83	88	33,192	36,006	25,070	29,292
Harrison	4,671	4,741	11,934	12,035	60	64	103,803	104,134	6,105	5,307
Henry	6,678	5,578	12,111	12,895	63	66	8,628	8,722	18,298	19,022
Highland	8,027	8,177	16,577	18,774	214	219	23,817	25,591	33,687	33,435
Hocking	3,565	3,757	8,778	9,711	58	49	16,215	17,293	5,967	5,942
Holmes	6,851	6,807	17,486	18,241	83	66	30,336	31,245	20,049	18,486
Huron	8,183	10,056	14,224	14,779	89	79	53,931	53,312	13,051	11,196
Jackson	3,462	3,590	10,745	11,273	820	836	8,617	8,889	4,542	3,921
Jefferson	5,769	5,701	10,692	12,773	255	186	56,998	60,433	6,836	6,762
Knox	7,304	7,693	17,136	18,807	116	114	90,645	95,698	21,351	18,794
Lake	4,830	4,286	6,969	7,189	9	5	7,431	6,456	1,606	1,295
Lawrence *	3,523	3,647	8,377	9,326	491	546	3,109	3,350	4,947	4,549
Licking	12,138	12,198	25,370	26,760	112	101	93,434	94,483	34,194	31,544
Logan	8,388	9,188	17,059	18,828	74	81	34,405	36,862	26,830	26,993
Lorain	9,097	8,803	21,185	22,139	38	50	27,280	26,753	7,799	6,434
Lucas	9,348	9,549	8,651	9,317	131	98	3,377	3,339	7,482	7,020
Madison	9,404	8,973	17,498	19,470	240	225	27,555	26,540	34,543	34,730
Mahoning	8,263	8,515	16,700	18,384	84	77	29,506	24,992	7,747	7,428
Marion	7,342	7,169	15,232	15,185	123	186	59,518	57,811	21,406	24,114
Medina	7,721	8,108	15,320	17,394	93	107	32,743	31,042	9,667	7,994
Meigs	5,304	5,197	10,778	10,748	218	210	30,244	30,263	4,733	4,094
Mercer	7,939	8,402	15,285	15,713	119	120	13,977	14,827	27,533	22,584
Miami	10,367	11,396	13,690	14,523	249	233	4,871	4,516	19,122	16,787
Monroe	4,754	5,174	13,115	12,460	48	59	17,826	17,735	5,469	5,964
Montgomery	15,759	16,310	19,444	19,791	215	246	3,058	3,216	21,663	20,740
Morgan	4,754	4,659	13,098	13,308	45	41	65,214	68,079	5,272	4,552
Morrow	7,262	7,734	14,847	15,035	53	42	63,701	66,318	16,239	14,156
Muskingum	9,374	8,967	24,002	24,316	167	153	88,069	89,319	13,518	11,578
Noble	4,183	4,048	14,206	14,312	60	52	53,167	56,668	7,743	6,733
Ottawa	5,265	5,413	7,968	8,792	40	39	5,265	4,991	9,896	7,499
Paulding	4,666	5,176	5,727	6,459	29	48	6,929	8,626	8,802	11,324

Perry	5,487	5,551	14,053	15,318	95	106	27,497	29,087	10,692	9,201
Pickaway	9,559	9,561	18,678	20,121	311	281	9,994	10,625	29,475	30,706
Pike	4,265	4,236	5,623	6,148	195	190	4,991	4,602	7,417	6,795
Portage	7,714	7,884	20,181	21,311	98	70	25,406	25,446	7,614	6,123
Preble	9,310	9,874	15,281	16,086	271	320	7,702	7,599	31,056	27,858
Putnam	8,470	8,151	16,118	16,822	64	55	12,452	13,403	34,399	35,974
Richland	8,698	8,594	16,063	17,095	121	114	42,352	41,787	21,348	19,451
Ross	10,477	10,522	19,197	21,124	156	132	12,254	11,785	24,136	26,006
Sandusky	8,430	8,434	13,362	14,289	43	50	17,294	16,079	23,541	20,339
Scioto	5,476	5,593	8,858	8,815	641	603	1,762	1,964	8,347	7,420
Seneca	8,971	9,145	15,206	17,133	61	69	33,581	36,001	34,403	27,644
Shelby	8,526	8,595	14,730	16,091	81	87	8,885	8,295	20,432	18,815
Stark	13,975	14,569	26,352	28,652	331	351	25,680	24,829	22,508	21,685
Summit	9,352	9,073	20,250	21,465	105	97	9,526	9,312	9,294	7,786
Trumbull	10,564	10,584	31,500	32,350	159	94	29,016	27,658	6,579	5,519
Tuscarawas	7,575	7,264	20,400	21,139	159	118	33,801	33,977	13,477	12,450
Union	7,277	7,630	14,014	15,222	30	45	42,011	44,732	25,952	29,010
Van Wert	7,789	8,250	11,278	12,198	156	168	14,083	14,962	22,973	25,051
Vinton	2,578	2,504	6,685	6,646	101	97	18,380	19,658	3,393	2,248
Warren	9,222	9,143	13,425	15,524	403	397	12,965	12,336	23,562	22,537
Washington	7,476	7,692	17,236	17,771	178	191	40,706	40,064	7,608	6,870
Wayne	10,888	10,821	24,960	25,352	181	167	26,481	24,770	27,255	24,135
Williams	6,377	6,256	12,461	12,244	57	40	28,043	25,539	16,949	19,455
Wood	10,933	11,256	17,498	17,909	80	94	17,745	16,657	34,026	32,500
Wyandot	6,971	7,150	13,304	14,200	76	60	59,986	66,852	25,378	23,182
Totals	705,197	711,146	1,351,718	1,427,661	14,521	14,373	2,517,360	2,544,070	1,550,114	1,489,518

Horses, 5,949 increase.
Cattle, 75,943 increase
Mules, 148 decrease.
Sheep, 26,710 increase.
Hogs, 60,596 decrease.

AGRICULTURAL STATISTICS

Gathered in May, 1900, and Reported to the Secretary of Agriculture, by County Auditors.

HORSES, CATTLE AND HOGS—RURAL DISTRICTS.

Counties.	Horses.	Cattle.				Hogs.	
	Number owned in May, 1900.	Beef cattle owned in May, 1900.	Milch cows owned in May, 1900.	All other cattle owned in May, 1900.	Total number owned in May, 1900.	Total number May, 1900.	For summer markets, 1900.
Adams	4,624	403	4,371	5,571	10,345	12,200	2,084
Allen	6,171	955	6,145	5,339	12,439	23,682	5,318
Ashland	5,614	747	6,409	5,737	12,893	14,382	3,660
Ashtabula	6,988	546	17,343	7,441	25,330	3,389	510
Athens	3,586	1,021	4,362	5,318	10,701	2,816	331
Auglaize	7,412	850	6,676	6,124	13,650	22,823	6,592
Belmont	6,224	1,210	8,247	9,251	18,708	9,735	1,157
Brown	5,434	1,303	5,840	5,988	13,131	16,623	3,582
Butler	7,118	1,142	7,084	4,002	12,228	16,422	4,886
Carroll	4,396	1,631	6,368	4,988	12,987	7,916	1,396
Champaign	7,333	2,422	6,616	6,677	15,715	30,434	11,519
Clark	7,315	1,658	6,667	6,740	15,065	23,092	3,496
Clermont	5,161	330	5,622	3,387	9,339	13,609	2,155
Clinton	7,071	1,437	5,414	5,830	12,681	36,550	11,806
Columbiana	6,718	529	11,511	6,450	18,490	9,581	1,461
Coshocton	5,235	868	6,596	8,327	15,791	11,361	3,181
Crawford	5,992	1,030	6,869	6,626	14,525	28,037	9,564
Cuyahoga	15,822	1,256	11,481	1,942	14,679	1,357	136
Darke	12,372	1,041	10,977	9,515	21,533	32,844	11,525
Defiance	5,205	1,171	5,483	3,901	10,555	15,317	3,437
Delaware	6,120	4,061	6,166	6,058	16,285	20,888	....
Erie	3,801	536	3,946	2,258	6,740	6,002	1,284
Fairfield	8,122	1,605	7,368	9,303	18,276	30,966	8,529
Fayette	6,633	3,044	3,405	10,968	17,417	31,809	5,887
Franklin	7,312	1,218	9,688	5,104	16,010	24,247	7,365
Fulton	5,212	820	6,593	3,128	10,541	11,230	2,897
Gallia	3,729	238	3,720	5,232	9,190	5,381	314
Geauga	4,552	405	12,751	4,562	17,718	3,773	1,004
Greene	7,777	1,498	7,493	6,481	15,472	17,950	10,017
Guernsey	4,250	948	5,895	6,715	13,558	5,640	1,025
Hamilton	16,847	17,483	5,655	1,112	24,250	11,060	....
Hancock	7,334	1,172	8,617	8,272	18,061	27,535	10,262
Hardin	5,167	794	5,932	6,709	13,435	28,444	7,245
Harrison	4,069	882	7,546	6,479	14,907	4,770	383
Henry	6,071	1,620	6,832	3,833	12,285	17,005	5,729
Highland	6,007	965	5,195	8,492	14,652	27,128	6,976
Hocking	3,211	421	3,502	4,927	8,850	6,104	363
Holmes	5,512	939	7,222	6,179	14,340	18,597	6,369
Huron	10,176	722	7,594	5,906	14,222	10,795	2,992
Jackson	2,855	420	3,324	6,307	10,051	4,195	66
Jefferson	4,036	584	6,267	4,795	11,646	5,847	39
Knox	6,977	684	6,702	8,735	16,121	18,221	4,819
Lake	2,274	197	4,078	1,436	5,711	924	337
Lawrence	2,502	321	2,614	4,249	7,184	3,669	50
Licking	9,572	1,977	10.158	12,488	24,623	34.652	16,111
Logan	7,011	464	6,822	8,801	16,087	22,634	7,256
Lorain	6,082	644	10,792	5,213	16,643	4,117	1,272
Lucas	3,787	204	5,248	1,426	6,878	6,116	2,536
Madison	7,055	1,198	4,602	10,983	16,783	29,085	15,457
Mahoning	5,181	562	8,707	4,337	13,606	6,153	605

HORSES, CATTLE AND HOGS—RURAL DISTRICTS—Concluded.

Counties.	Horses.	Cattle.				Hogs.	
	Number owned in May, 1900.	Beef cattle owned in May, 1900.	Milch cows owned in May, 1900.	All other cattle owned in May, 1900.	Total number owned in May, 1900.	Total number May, 1900.	For summer markets, 1900.
Marion	5,313	1,494	4,540	5,272	11,306	17,297	5,391
Medina	6,751	480	9,069	5,372	14,921	7,283	1,993
Meigs	4,228	178	3,993	5,507	9,678	3,383	4
Mercer	6,784	498	6,488	6,676	13,662	25,189	6,719
Miami	6,727	425	5,867	3,879	10,171	12,268	1,172
Monroe	5,286	618	7,317	6,690	14,625	7,881	1,086
Montgomery	9,844	1,180	9,667	5,328	16,175	16,284	2,223
Morgan	4,537	1,037	4,706	7,465	13,208	6,232	876
Morrow	7,323	1,167	6,066	7,222	14,455	13,310	5,736
Muskingum	6,663	1,735	8,897	10,795	21,427	11,542	1,713
Noble	3,654	1,536	4,808	6,898	13,242	5,970	1,448
Ottawa	4,270	311	4,772	2,172	7,255	4,913	171
Paulding	5,014	115	4,225	3,311	7,651	16,001	3,796
Perry	4,116	1,072	4,967	7,550	13,589	8,511	3,196
Pickaway	6,707	1,356	5,355	9,768	16,479	22,088	8,725
Pike	3,294	289	2,168	2,941	5,391	6,230	462
Portage	7,425	815	14,934	5,165	20,914	5,580	593
Preble	7,840	642	7,316	7,151	15,109	28,350	6,825
Putnam	6,994	1,561	8,272	5,707	15,540	28,365	7,341
Richland	6,144	520	6,440	8,040	15,000	18,265	3,013
Ross	6,424	2,855	4,108	7,080	14,043	17,097	4,864
Sandusky	7,341	833	7,871	4,122	12,826	18,168	4,155
Scioto	4,321	192	3,666	4,149	8,007	6,325	96
Seneca	7,504	473	8,233	5,786	14,492	24,087	3,956
Shelby	7,303	561	7,063	6,912	14,536	17,313	1,249
Stark	9,545	993	14,124	10,824	25,941	18,126	1,703
Summit	5,695	704	11,713	6,079	18,496	7,283	1,359
Trumbull	8,143	2,541	16,798	9,056	28,395	6,944	1,192
Tuscarawas	5,380	1,597	9,898	7,466	18,961	10,365	1.874
Union	6,586	794	6,392	7,096	14,282	26,719	7,584
Van Wert	6,352	342	5,293	4,577	10,212	21,260	7,812
Vinton	2,014	341	2,242	3,489	6,072	2,355	60
Warren	6,181	763	5,732	5,410	11,905	16,223	3,284
Washington	5,901	657	7,210	8,382	16,249	6,209	420
Wayne	9,196	1,496	12,008	11,229	24,733	23.569	4.947
Williams	6,256	1,018	5,050	6,176	12,244	19,455	5,780
Wood	8,205	1,507	8,327	5,878	15,712	26,936	8,447
Wyandot	5,628	565	5,732	5,804	12,101	19,740	6,681
Totals	551,923	103,437	615,842	534,666	1,253,945	1,339,113	343,291

SHEEP AND WOOL.

Counties.	Sheep.					Wool.
	Number owned May, 1900.	Killed by dogs.		Injured by dogs.		Pounds shorn, 1899.
		Number, 1899.	Value, 1899 (dollars).	Number, 1899.	Value, 1899 (dollars).	
Adams	7,954	64	$304	32	$99	43,672
Allen	17,737	432	2,063	234	427	104,950
Ashland	30,564	105	455	53	184	245,615
Ashtabula	14,229	214	883	74	236	86,941
Athens	47,113	561	1,506	336	753	271,610
Auglaize	10,117	178	658	94	247	54,598
Belmont	72,293	453	1,477	567	568	426,580
Brown	10,015	169	699	127	346	60,240
Butler	6,728	97	464	30	121	36,797
Carroll	57,008	539	1,374	135	264	343,829
Champaign	19,050	132	570	470	472	126,343
Clark	21,374	197	748	91	216	99,718
Clermont	5,862	247	973	74	158	26,691
Clinton	21,361	324	1,281	127	216	122,750
Columbiana	29,375	628	2,337	310	804	181,462
Coshocton	66,459	545	1,402	285	556	428,255
Crawford	37,596	80	340	54	167	177,393
Cuyahoga	5,960	299	1,512	69	155	30,982
Darke	6,544	162	858	56	158	39,960
Defiance	12,980	105	495	172	368	76,257
Delaware	51,114	665	2,509	233	599	252,780
Erie	11,222	155	599	113	239	69,572
Fairfield	15,581	134	469	216	300	87,511
Fayette	11,688	101	318	62	141	33,199
Franklin	8,181	181	677	425	781	52,330
Fulton	14,976	164	619	208	267	102,542
Gallia	1,139	403	2,352	124	379	61,700
Geauga	11,090	146	543	30	99	63,852
Greene	15,952	336	1,442	216	325	107,164
Guernsey	59,473	1,218	2,446	425	941	432,097
Hamilton	2,139	284	1,074	354	519	3,379
Hancock	31,619	445	1,657	390	894	192,938
Hardin	26,813	344	1,137	254	511	140,341
Harrison	81,328	415	9,157	292	1,555	540,864
Henry	7,475	177	778	174	337	44,841
Highland	18,029	149	619	70	108	110,726
Hocking	15,878	293	872	106	144	87,109
Holmes	24,872	165	769	60	210	123,153
Huron	48,558	125	466	141	393	354,720
Jackson	8,808	245	777	88	188	41,820
Jefferson	54,843	602	2,052	235	270	335,548
Knox	78,949	223	1,478	362	695	503.681
Lake	4,969	98	363	35	131	25,981
Lawrence	2,382	74	195	52	274	5,081
Licking	89,276	915	3,269	762	1,626	534,616
Logan	29,134	235	961	260	498	206,580
Lorain	20,066	127	401	60	130	118,142
Lucas	2,446	118	517	83	203	15,618
Madison	20,513	356	1,183	330	558	100,981
Mahoning	18,595	174	671	48	145	115,545
Marion	46,030	238	851	144	373	300,818
Medina	26,419	215	889	94	239	181,775
Meigs	26,919	126	404	62	120	143,300
Mercer	13,018	104	446	308	236	58,840
Miami	2,706	238	294	172	286	18,179
Monroe	16,910	318	1,142	203	379	94,018
Montgomery	2,365	35	141	44	151	11,711
Morgan	66,364	273	785	237	37	380,376
Morrow	59,970	176	637	94	232	370,108
Muskingum	75,143	677	1,860	575	957	458,708
Noble	54,277	399	1,355	185	428	302,211
Ottawa	3,509	25	124	9	15	23.935
Paulding	7,407	111	503	138	376	35,963
Perry	25,161	422	1,393	188	281	144,170

SHEEP AND WOOL—Concluded.

Counties.	Sheep.					Wool.
	Number owned May, 1900.	Killed by dogs.		Injured by dogs.		Pounds shorn, 1899.
		Number, 1899.	Value, 1899 (dollars).	Number, 1899.	Value, 1899 (dollars).	
Pickaway	8,416	184	933	115	337	59.604
Pike	3,119	33	122	29	75	16,311
Portage	21,210	228	988	161	298	126,665
Preble	6,379	121	618	50	126	34,575
Putnam	9,976	202	781	92	268	43,257
Richland	36,532	212	845	108	223	192,336
Ross	7,440	178	581	37	296	67,999
Sandusky	14,749	60	286	55	141	82.044
Scioto	1,592	94	275	45	126	5,554
Seneca	31,209	331	1,675	134	269	177,127
Shelby	6,211	72	291	59	145	40,480
Stark	21,277	514	964	458	482	124,765
Summit	7,959	223	785	91	196	40,961
Trumbull	26,612	561	2,197	233	423	134,121
Tuscarawas	28,113	392	1,234	155	294	155,420
Union	41,688	499	1,889	371	982	252,370
Van Wert	10,489	120	679	118	416	61,674
Vinton	16,430	893	733	75	153	80,062
Warren	9,487	290	1,331	94	273	64,112
Washington	33,453	488	1,504	315	504	198,705
Wayne	22,063	203	875	131	244	125,543
Williams	27,235	175	693	887	904	153,175
Wood	12,302	326	1,077	180	401	75,379
Wyandot	59,120	270	876	147	350	331,047
Totals	2,176,716	24,624	$93,830	16,191	$32,008	13,017,052

DOMESTIC ANIMALS DIED FROM DISEASES.

Counties.	Hogs.		Sheep.		Cattle.		Horses.	
	Number.	Value (dollars).	Number.	Value (dollars).	Number.	Value (dollars).	Number.	Value (dollars).
Adams	658	$3,383	284	$937	117	$2,474	99	$3,967
Allen	891	3,314	449	1,779	175	3,839	107	6,450
Ashland	418	2,102	1,285	4,815	184	4,006	144	9,187
Ashtabula	174	1,169	751	2,263	328	7,177	117	6,096
Athens	111	576	956	2,082	115	1,946	58	3,695
Auglaize	2,517	11,180	340	1,471	207	4,726	178	11,095
Belmont	197	1,006	1,947	4,316	263	5,533	102	5,543
Brown	2,464	11,969	653	2,359	208	4,951	126	5,955
Butler	3,696	16,911	409	1,864	223	5,732	226	10,860
Carroll	114	641	2,655	6,685	159	3,111	84	5,315
Champaign	1,298	5,472	539	1,721	185	4,995	143	7,450
Clark	2,637	10,482	843	3,358	181	4,712	238	12,625
Clermont	1,234	5,283	385	1,510	185	4,860	145	5,830
Clinton	2,435	9,756	1,144	3,683	139	3,681	122	5,651
Columbiana	350	1,944	2,188	5,456	321	8,571	143	7,270
Coshocton	292	1,489	3,210	7,109	220	4,847	104	5,750
Crawford	1,812	7,151	1,099	3,531	148	3,347	97	4,780
Cuyahoga	201	1,285	206	636	211	6,583	115	6,675
Darke	2,538	11,922	289	1,231	301	6,610	442	11,763
Defiance	737	3,269	577	2,525	167	2,933	111	5,152
Delaware	686	2,849	1,214	3,904	197	4,696	104	7,116
Erie	1,023	4,952	402	1,206	83	2,338	86	4,440
Fairfield	1,673	7,228	686	2,394	217	4,683	142	7,935
Fayette	5,035	16,360	565	1,812	221	8,529	161	7,236
Franklin	3,878	15,644	512	1,935	235	5,282	172	7,671
Fulton	2,034	8,549	414	1,467	116	3,988	100	7,365
Gallia	400	1,777	1,128	3,339	193	3,559	126	4,135
Geauga	177	918	610	2,012	284	8,889	92	4,750
Greene	11,140	39,340	740	2,825	180	4,896	169	8,405
Guernsey	160	790	2,604	5,225	141	3,216	80	3,652
Hamilton	671	2,998	67	231	188	4,067	135	4,970
Hancock	10,009	36,866	960	3,239	244	5,879	171	8,850
Hardin	1,346	5,523	494	1,459	124	2,370	102	5,625
Harrison	117	546	2,841	7,411	163	4,031	118	4,575
Henry	1,139	4,923	547	2,162	427	5,418	761	12,746
Highland	1,853	7,501	1,681	4,950	175	4,447	90	3,916
Hocking	498	2,308	845	2,122	159	2,021	83	3,530
Holmes	290	1,404	1,672	4,058	199	3,254	126	6,844
Huron	742	2,959	1,223	3,730	116	3,152	106	6,025
Jackson	142	801	423	1,065	126	2,395	46	1,830
Jefferson	170	691	2,995	5,715	201	5,045	68	3,464
Knox	232	940	2,383	3,642	481	3,394	119	5,867
Lake	48	369	445	1,148	59	1,727	87	1,875
Lawrence	216	880	88	254	404	6,899	71	3,225
Licking	853	4,025	3,912	8,642	231	5,456	193	9,383
Logan	1,614	6,694	1,524	4,479	240	5,250	164	9,127
Lorain	134	920	500	1,561	175	4,941	153	5,555
Lucas	2,004	7,959	84	329	131	3,389	131	7,728
Madison	8,112	27,812	1,193	3,584	210	6,493	193	12,580
Mahoning	184	889	1,290	3,564	179	4,203	88	4,562
Marion	1,300	5,654	2,037	5,388	91	2,182	154	8,324
Medina	177	1,014	675	2,371	490	5,362	112	6,861
Meigs	141	747	468	1,233	98	1,896	105	2,546
Mercer	13,085	44,869	500	2,191	214	4,766	154	7,895
Miami	950	4,472	128	613	182	3,934	129	7,100
Monroe	298	1,668	670	1,669	198	3,475	120	5,655
Montgomery	1,742	9,226	199	753	300	7,019	220	11,229
Morgan	133	667	1,408	3,110	121	2,068	43	2,700
Morrow	1,056	4,235	1,318	3,792	222	3,331	105	6,560
Muskingum	224	1,149	2,762	5,572	215	4,232	116	6,070
Noble	189	864	1,074	2,338	130	2,422	50	2,185
Ottawa	9.559	27,310	63	241	108	2,365	86	4,317
Paulding	657	3,276	303	1,046	88	2,144	89	3,743
Perry	263	1,396	833	1,890	179	3,266	95	3,910
Pickaway	2,370	8,692	390	1,261	166	4,651	129	6,900
Pike	748	3,418	197	752	95	2,177	88	3,850
Portage	192	1,099	1,163	3,414	255	8,110	137	6,635
Preble	3,130	13,657	265	1,213	195	5,397	132	7,221
Putnam	2,007	8,003	391	1,465	172	4,115	162	8,109
Richland	758	3,188	1,246	4,346	177	3,978	144	9,405
Ross	2,433	9,381	1,496	4,302	212	5,596	197	9,585

DOMESTIC ANIMALS DIED FROM DISEASES—Concluded.

Counties.	Hogs.		Sheep.		Cattle.		Horses.	
	Number.	Value (dollars).	Number.	Value (dollars).	Number.	Value (dollars).	Number.	Value (dollars).
Sandusky	7,191	32,569	369	1,854	148	3,865	127	7,490
Scioto	586	2,874	64	222	149	2,755	160	6,355
Seneca	11,360	51,774	852	3,119	210	5,098	207	11,412
Shelby	3,798	12,983	304	957	285	5,258	197	9,627
Stark	527	3,156	1,449	4,020	343	5,566	263	12,598
Summit	281	1,286	295	1,064	289	6,048	102	4,981
Trumbull	220	1,296	1,194	3,724	307	7,867	120	6,516
Tuscarawas	288	1,496	1,227	3,153	297	6,061	138	7,721
Union	1,767	7,258	1,538	4,636	167	4,053	137	8,374
Van Wert	681	3,668	496	1,870	115	2,977	133	6,612
Vinton	92	515	403	1,258	80	1,717	52	1,795
Warren	4,470	22,423	654	2,429	240	5,377	140	6,270
Washington	162	1,099	1,067	2,496	138	2,857	89	2,935
Wayne	481	2,532	1,195	4,533	283	6,110	173	10,560
Williams	525	2,621	922	3,603	116	3,106	97	6,280
Wood	2,238	8,696	694	2,267	220	6,675	211	14,709
Wyandot	6,767	26,817	1,259	3,454	103	2,670	101	5,615
Totals	164,200	$662,767	85,819	$242,414	17,534	$389,087	12,152	$586,739

WHEAT, RYE AND BUCKWHEAT.

Counties.	Wheat.			Rye.			Buckwheat.	
	Acres sown for harvest, 1899.	Bushels produced, 1899.	Acres sown for harvest, 1900.	Acres sown for 1899.	Bushels produced, 1899.	Acres sown for 1900.	Acres sown, 1899	Bushels produced, 1899.
Adams	26,981	218,156	26,241	128	808	348	2	40
Allen	34,602	560,722	35,915	140	2,364	194	10	115
Ashland	36,025	602,971	30,032	154	1,353	161	24	252
Ashtabula	14,792	241,819	13,565	381	4,985	327	2,500	33,974
Athens	13,686	151,795	11,421	40	440	36	4	65
Auglaize	43,419	775,151	42,370	125	1,731	148	16	230
Belmont	25,855	274,604	24,873	107	854	118	155	1,344
Brown	34,229	259,818	28,901	544	1,838	785	7	35
Butler	81,684	108,176	55,520	56	472	148	....	....
Carroll	17,615	207,543	17,712	70	528	85	49	440
Champaign	50,023	783,253	49,001	253	1,630	296	10	67
Clark	44,368	806,942	36,762	317	5,239	530	4	56
Clermont	26,020	192,959	21,339	898	6,589	1,165	17	153
Clinton	47,863	687,147	43,071	161	1,771	213	27	208
Columbiana	22,353	320,530	23,711	135	1,249	174	112	988
Coshocton	31,516	338,998	29,799	195	1,710	251	128	1,156
Crawford	31,293	650,523	31,080	24	473	22	16	163
Cuyahoga	11,059	202,621	10,585	310	5,658	464	8	221
Darke	78,922	1,351,096	71,793	356	4,470	495	56	534
Defiance	29,204	207,468	29,574	116	1,546	257	210	2,817
Delaware	27,792	479,210	28,275	114	1,067	101	43	383
Erie	21,425	388,458	19,934	213	2,260	426	244	2,428
Fairfield	51,326	677,034	43,524	137	1,789	159	15	147
Fayette	52,226	958,175	49,263	153	1,391	88	....	....
Franklin	53,310	716,942	42,971	208	2,783	399	31	159
Fulton	26,419	82,381	24,734	209	2,694	344	647	7,341
Gallia	24,486	216,132	23,694	37	238	61	14	68
Geauga	9,629	173,755	9,281	22	278	21	154	1,575
Greene	54,934	850,817	49,664	121	1,790	212	15	121
Guernsey	19,052	205,903	19,240	68	639	128	114	1,097
Hamilton	29,978	294,745	15,086	492	7,743	560	15	15
Hancock	53,198	946,112	41,250	177	3,044	286	34	168
Hardin	33,551	620,912	34,864	117	1,853	229	864	29,358
Harrison	13,646	159,877	12,723	45	291	45	11	84
Henry	44,276	207,346	42,628	1,138	23,478	3,029	182	2,862
Highland	44,887	413,624	39,178	481	1,108	474	16	189
Hocking	17,290	158,223	15,289	33	302	83	148	1,792
Holmes	30,349	457,884	27,079	94	1,130	51	31	200
Huron	36,497	781,246	36,476	127	1,656	108	56	719
Jackson	16,001	134,424	15,302	24	192	108	117	1,509
Jefferson	16,269	177,028	14,813	41	199	58	14	128
Knox	36,948	526,682	36,485	151	874	234	33	347
Lake	6,450	100,367	5,053	395	6,204	354	115	1,263
Lawrence	13,175	101,183	11,645	36	70	72	3	13
Licking	46,346	615,650	44,488	456	4,159	522	138	1,380
Logan	40,586	739,302	47,223	202	2,109	410	13	124
Lorain	23,068	402,773	23,249	25	391	44	15	190
Lucas	14,912	46,565	13,578	482	5,122	859	821	13,260
Madison	47,563	891,327	28,352	94	1,206	261	5	61
Mahoning	15,066	231,788	15,385	94	1,134	79	120	1,628
Marion	30,846	605,021	29,746	59	676	42	9	102
Medina	26,903	311,808	25,442	214	3,415	172	558	80,370
Meigs	21,951	237,695	20,584	73	449	76	15	107
Mercer	43,335	766,255	36,605	377	4,038	287	12	139
Miami	50,599	876,799	51,997	109	1,142	106	4	55
Monroe	23,456	239,907	22,967	193	2,020	175	342	4,392
Montgomery	50,118	859,863	45,475	38	404	95	3	36
Morgan	17,482	234,544	15,202	29	199	21	48	631
Morrow	22,078	434,262	24,644	127	1,866	128	13	118
Muskingum	31,247	367,125	33,292	191	1,595	262	48	372
Noble	16,549	164,328	16,200	32	310	32	65	715

WHEAT, RYE AND BUCKWHEAT—Concluded.

Counties.	Wheat.			Rye.			Buckwheat.	
	Acres sown for harvest, 1899.	Bushels produced, 1899.	Acres sown for harvest, 1900.	Acres sown for 1899.	Bushels produced, 1899.	Acres sown for 1900	Acres sown, 1899.	Bushels produced, 1899.
Ottawa	21,773	184,651	20,590	90	1,743	313	21	186
Paulding	21,099	74,689	23,648	284	4,208	1,296	178	2,423
Perry	20,940	252,250	19,505	47	505	91	93	1,225
Pickaway	64,841	994,225	58,274	13	191	278	3	45
Pike	22,463	203,170	19,257	49	337	116	92	583
Portage	22,095	370,435	21,347	88	1,147	148	227	3,540
Preble	52,598	952,659	51,326	91	1,074	241	1	5
Putnam	51,383	879,735	51,583	199	4,722	377	20	323
Richland	39,210	690,417	38,453	223	2,783	153	41	510
Ross	48,375	634,346	41,475	158	843	159	23	228
Sandusky	45,102	1,188,685	41,278	127	2,145	229	32	347
Scioto	23,306	246,556	21,475	48	139	82	66	718
Seneca	57,779	1,089,356	58,064	42	811	88	25	224
Shelby	45,898	713,427	50,044	257	3,925	530	50	268
Stark	50,618	775,863	48,306	137	822	171	47	701
Summit	27,881	535,302	27,152	87	1,508	212	20	313
Trumbull	15,968	274,161	15,261	100	1,290	139	403	5,609
Tuscarawas	31,529	374,922	29,953	122	1,027	115	75	939
Union	32,301	526,909	33,971	143	1,599	138	21	205
Van Wert	35,319	534,494	33,642	182	3,982	701	43	498
Vinton	11,812	101,428	9,321	16	164	39	61	587
Warren	38,257	456,352	33,350	266	2,373	513	32	273
Washington	37,615	411,392	30,179	72	494	88	125	1,276
Wayne	52,655	789,228	53,300	60	688	85	22	259
Williams	32,765	304,170	24,660	245	3,298	175	130	2,016
Wood	41,630	507,902	43,415	212	3,524	421	40	555
Wyandot	32,696	607,221	33,539	63	1,352	106	17	251
Totals	2,957,616	41,469,703	2,718,513	15,359	185,710	24,372	10,408	173,206

OATS AND WINTER BARLEY.

Counties.	Oats.			Winter Barley.		
	Acres sown, 1899.	Bushels produced, 1899.	Acres (estimated) sown for 1900.	Acres sown, 1899.	Bushels produced, 1899.	Acres sown for 1900.
Adams	1,203	17,929	2,357	....	....	....
Allen	7,916	251,511	15,431	12	260	128
Ashland	15,895	659,558	15,938	91	2,536	22
Ashtabula	21,356	794,959	20,724	5	110	4
Athens	746	14,862	974	....	....	....
Auglaize	10,216	350,996	21,582	48	1,488	53
Belmont	5,902	17,338	7,635	17	312	8
Brown	3,745	107,276	5,895	....	....	10
Butler	3,988	110,330	10,608	792	25,365	493
Carroll	14,077	441,821	23,398	1	25	2
Champaign	5,789	165,204	19,220	25	658	19
Clark	4,324	135,621	16,551	287	114	47
Clermont	5,263	128,181	8,970	23	194	....
Clinton	1,667	49,114	6,503	111	190	15
Columbiana	19,399	693,071	18,552	....	....	....
Coshocton	8,167	251,767	9,963	27	402	27
Crawford	20,074	819,421	21,317	31	1,214	54
Cuyahoga	15,775	642,896	15,174	....	....	2
Darke	14,579	470,379	33,575	92	1,942	170
Defiance	23,254	957,135	20,270	47	1,576	55
Delaware	11,213	344,521	11,995	50	1,240	78
Erie	13,024	473,071	15,340	69	1,660	25
Fairfield	3,678	85,406	6,887	41	1,210	43
Fayette	614	17,685	5,618	41	1,440	48
Franklin	7,170	226,929	14,320	41	71	69
Fulton	24,622	1,131,937	22,776	124	4,130	165
Gallia	968	13,971	1,520	....	....	....
Geauga	13,554	528,497	13,551	4	127	....
Greene	2,923	76,022	8,556	....	....	2
Guernsey	5,577	143,307	6,373	6	200	23
Hamilton	2,111	46,943	2,731	101	2,627	15
Hancock	10,508	376,222	19,515	37	778	168
Hardin	7,262	271,438	14,296	4	80	11
Harrison	5,725	189,021	6,206	2	23	15
Henry	21,222	948,238	16,944	293	6,022	328
Highland	942	21,211	2,110	29	360	21
Hocking	1,003	17,533	1,398	....	....	....
Holmes	15,959	571,119	15,520	4	118	2
Huron	25,940	947,383	27,272	19	430	16
Jackson	382	4,952	613	....	....	3
Jefferson	10,079	356,377	9,955	9	97	4
Knox	9,692	331,068	10,062	10	177	12
Lake	7,556	253,776	7,616	12	218	11
Lawrence	2,124	27,183	3,174	....	....	....
Licking	9,247	255,039	10,916	....	....	....
Logan	6,617	176,908	16,909	18	452	56
Lorain	21,250	806,837	20,154	123	1,120	33
Lucas	15,467	641,083	11,971	48	1,208	82
Madison	5,323	191,784	16,010	14	311	264
Mahoning	14,848	589,750	15,619	4	58	....
Marion	13,434	496,708	18,060	2	13	3
Medina	20,192	833,985	20,522	22	648	37
Meigs	1,282	20,364	1,413	....	12	....
Mercer	39,909	580,336	34,338	223	6,709	458
Miami	10,202	369,129	20,851	37	390	....
Monroe	5,228	111,545	6,775	½	7	....
Montgomery	11,230	247,374	17,427	73	2,765	33
Morgan	2,278	37,230	2,532	....	....	....
Morrow	15,973	577,876	14,824	....	....	....
Muskingum	4,209	112,326	5,254	2	50	....
Noble	2,529	49,463	2,737	....	....	7
Ottawa	12,012	123,448	10,034	392	9,272	374

OATS AND WINTER BARLEY—Concluded.

Counties.	Oats.			Winter Barley.		
	Acres sown, 1899.	Bushels produced, 1899.	Acres (estimated) sown for 1900.	Acres sown, 1899.	Bushels produced, 1899.	Acres sown for 1900.
Paulding	21,275	882,971	15,252	28	1,028	1,414
Perry	937	20,190	1,520	4	135	1
Pickaway	804	15,111	3,259	....	....	....
Pike	533	6,503	895	6	50	6
Portage	19,415	759,979	19,377	5	35	23
Preble	6,240	181,531	19,567	52	1,235	70
Putnam	7,154	241,478	9,034	101	2,046	783
Richland	22,632	833,789	21,797	56	1,672	32
Ross	422	7,708	1,254	2	20	1
Sandusky	14,849	589,622	22,465	15	580	84
Scioto	2,088	30,801	3,026	9	30	12
Seneca	18,774	624,614	22,697	62	959	142
Shelby	17,121	500,374	28,844	116	1,972	84
Stark	30,191	1,121,658	29,253	7	60	11
Summit	18,312	716,708	18,110	10	176	....
Trumbull	21,226	748,819	21,139	2	36	13
Tuscarawas	17,959	568,044	19,081	....	....	....
Union	8,539	229,269	13,393	10	113	109
Van Wert	13,613	532,503	14,756	129	3,022	345
Vinton	592	9,477	798	....	....	....
Warren	3,898	20,397	8,320	224	8,000	213
Washington	5,603	115,701	6,139	....	5	5
Wayne	26,141	1,128,861	26,279	22	312	....
Williams	26,198	933,170	24,858	....	....	....
Wood	37,281	1,404,129	35,161	743	21,077	927
Wyandot	9,382	369,141	14,082	8	240	6
Totals	969,565	33,296,912	1,185,677	5,074½	123,212	131,188

SPRING BARLEY AND CORN.

Counties.	Spring barley.		Corn.		
	Acres sown, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Bushels (shelled) produced, 1899.	Acres planted (estimated) for crop of 1900.
Adams	....	....	37,404	902,171	37,783
Allen	241	1,482	34,330	1,257,240	37,730
Ashland	71	1,222	23,617	836,308	22,368
Ashtabula	33	610	16,357	454,599	12,043
Athens	....	....	14,423	449,755	12,142
Auglaize	59	1,431	42,498	1,574,265	49,948
Belmont	21	230	23,336	895,204	22,752
Brown	1	26	46,283	1,214,197	56,398
Butler	8	300	47,876	3,101,482	52,731
Carroll	8	116	13,762	391,093	13,630
Champaign	108	3,183	51,995	2,225,267	59,839
Clark	106	2,285	49,146	203,544	57,682
Clermont	8	200	38,745	1,111,813	35,084
Clinton	31	1,200	56,641	2,555,251	61,105
Columbiana	33	455	18,221	601,318	17,681
Coshocton	6	160	26,172	773,188	23,543
Crawford	66	1,229	34,067	1,345,669	33,832
Cuyahoga	2	40	11,093	373,953	10,363
Darke	257	5,579	85,828	3,208,023	103,774
Defiance	1,229	40,637	32,106	1,619,358	28,215
Delaware	....	....	41,144	1,540,143	39,272
Erie	334	6,108	17,201	649,002	17,431
Fairfield	1	17	51,913	2,199,100	55,157
Fayette	27	529	55,893	2,515,635	75,847
Franklin	....	....	63,729	230,529	71,901
Fulton	792	25,438	31,375	1,254,455	28,914
Gallia	....	....	23,875	640,882	23,853
Geauga	12	440	9,936	328,128	9,511
Greene	41	772	55,753	2,754,575	63,691
Guernsey	1	30	19,041	606,624	18,686
Hamilton	....	....	17,623	551,100	13,604
Hancock	508	11,378	53,332	2,201,211	53,645
Hardin	16	388	39,862	1,565,667	40,107
Harrison	37	1,043	12,575	419,352	11,964
Henry	2,765	85,097	63,169	2,994,496	55,108
Highland	....	....	51,360	1,763,498	53,470
Hocking	....	....	16,152	480,428	16,138
Holmes	20	224	18,242	663,754	18,437
Huron	120	3,625	28,450	1,266,748	30,310
Jackson	....	....	16,848	287,640	15,425
Jefferson	56	1,040	13,505	469,059	12,650
Knox	25	1,406	32,307	1,055,860	41,194
Lake	33	930	7,099	238,540	5,206
Lawrence	....	....	16,906	367,082	16,891
Licking	7	116	51,924	1,981,628	49,903
Logan	47	675	46,670	1,753,369	58,418
Lorain	67	1,126	19,353	662,442	20,017
Lucas	474	13,777	22,449	916,422	18,597
Madison	28	256	75,964	2,824,597	91,837
Mahoning	12	135	13,450	547,222	13,452
Marion	5	184	41,023	1,794,112	44,524
Medina	134	3,452	20,247	692,320	20,368
Meigs	....	....	14,678	561,612	14,544
Mercer	232	3,628	42,550	1,686,532	51,792
Miami	66	1,887	46,263	2,063,832	52,589
Monroe	....	....	19,524	598,603	18,893
Montgomery	32	976	45,965	1,680,543	49,483
Morgan	5	85	16,088	627,117	14,296
Morrow	2	35	27,237	1,109,115	27,211
Muskingum	16	33	31,405	1,049,738	30,235
Noble	2	4	17,047	628,768	15,667

SPRING BARLEY AND CORN—Concluded.

Counties.	Spring barley.		Corn.		
	Acres sown, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Bushels (shelled) produced, 1899.	Acres planted (estimated) for crop of 1900.
Ottawa	865	21,484	22,448	815,567	20,957
Paulding	3,882	134,277	50,231	2,477,194	44,979
Perry	....	....	18,690	662,910	17,130
Pickaway	50	125	72,679	2,949,668	79,773
Pike	....	....	24,013	623,679	31,905
Portage	....	....	14,883	445,843	14,641
Preble	....	....	50,570	2,116,052	56,841
Putnam	1,693	36,687	58,766	2,601,494	57,610
Richland	97	2,159	28,639	119,201	28,384
Ross	....	....	61,241	2,498,190	59,023
Sandusky	81	2,402	43,516	1,451,885	45,037
Scioto	1	12	23,613	774,136	24,199
Seneca	112	2,830	46,956	1,731,338	45,952
Shelby	52	998	44,992	1,636,396	53,130
Stark	44	668	29,494	1,076,804	30,042
Summit	1	30	17,197	580,650	18,157
Trumbull	....	....	16,161	462,275	15,125
Tuscarawas	6	92	21,354	627,542	21,009
Union	51	464	46,991	1,765,009	51,675
Van Wert	2,176	73,833	51,323	2,193,660	....
Vinton	....	....	21,865	276,072	10,749
Warren	7	126	44,132	1,934,531	46,750
Washington	....	....	22,068	722,987	19,062
Wayne	83	803	36,706	1,428,753	36,456
Williams	2,170	68,935	28,263	1,118,563	26,650
Wood	2,005	57,562	78,878	3,178,841	79,814
Wyandot	29	715	37,060	1,574,785	37,115
Totals	21,610	629,421	3,025,666	111,159,200	3,095,051

For "Bushels (shelled) produced, 1899," in column of Corn—
For Butler County, instead of 3,101,482, read 2,101,482.
For Clark County, instead of 203,544, read 2,035,440.
For Franklin County, instead of 230,529, read 2,305,290.
For Richland County, instead of 119,201, read 1,192,010.
For total, instead of 111,159,200, read 115,138,669.

MEADOW AND CLOVER.

Counties.	Meadow.		Clover.			
	Acres in grass (other than clover), 1899.	Tons of hay produced, 1899.	Acres grown, 1899.	Tons of hay produced, 1899.	Bushels of seed produced, 1899.	Acres plowed under for manure, 1899.
Adams	13,383	10,767	7,447	4,963	3,768	557
Allen	18,217	20,394	14,681	15,684	4,930	226
Ashland	21,033	26,026	13,394	16,998	4,689	542
Ashtabula	40,285	57,306	1,916	2,785	77	152
Athens	17,578	17,576	1,853	2,253	191	133
Auglaize	14,036	14,891	9,476	12,062	7,296	859
Belmont	34,914	37,050	5,483	6,372	2,947	74
Brown	17,222	14,475	3,125	1,432	920	196
Butler	14,495	14,131	17,146	12,847	6,520	6,273
Carroll	27,703	28,668	4,057	3,984	773	7
Champaign	7,545	8,029	16,015	20,244	8,374	3,403
Clark	11,480	11,951	12,904	12,211	8,969	1,681
Clermont	21,026	15,535	5,047	3,038	890	1,027
Clinton	14,260	13,342	10,801	8,415	7,929	2,088
Columbiana	36,292	41,881	7,250	8,931	601	124
Coshocton	26,336	27,247	7,741	8,791	5,211	231
Crawford	23,805	31,651	11,854	14,857	5,105	96
Cuyahoga	23,738	29,264	2,490	3,432	112	164
Darke	13,312	14,152	28,101	26,603	17,105	9,327
Defiance	18,225	19,141	5,165	5,191	4,419	493
Delaware	26,651	27,562	9,196	10,641	2,428	236
Erie	10,039	12,301	5,577	5,985	1,434	916
Fairfield	23,178	22,554	15,946	16,816	17,068	808
Fayette	10,243	9,859	5,339	4,069	4,660	1,727
Franklin	24,904	27,882	9,280	9,538	7,845	863
Fulton	14,672	18,786	2,324	2,444	693	122
Gallia	15,035	11,380	2,439	1,823	224	424
Geauga	21,750	27,987	1,892	2,792	28	115
Greene	10,938	12,491	13,133	9,450	11,152	4,523
Guernsey	32,045	32,677	3,291	3,788	1,102	119
Hamilton	11,680	13,227	4,119	4,923	1,145	829
Hancock	27,602	31,597	11,072	14,161	4,489	764
Hardin	17,662	24,276	10,075	12,864	3,830	641
Harrison	31,209	34,741	2,267	2,648	1,270	22
Henry	14,268	16,339	2,438	2,697	2,161	308
Highland	21,021	20,724	5,642	5,372	6,753	348
Hocking	12,689	11,117	3,972	3,240	2,293	242
Holmes	15,944	19,237	10,499	10,093	5,806	156
Huron	29,009	34,863	13,968	15,607	3,586	624
Jackson	16,064	10,859	608	401	42	90
Jefferson	25,949	28,448	4,867	6,247	3,002	83
Knox	23,600	28,987	11,662	16,118	8,533	313
Lake	9,336	12,027	1,064	1,491	53	64
Lawrence	5,551	4,511	1,472	1,025	56	289
Licking	38,173	42,240	17,177	15,430	10,107	....
Logan	14,391	16,241	14,523	17,563	7,629	458
Lorain	38,767	44,487	5,271	6,984	494	119
Lucas	9,973	11,514	1,706	1,713	735	394
Madison	8,450	8,592	8,597	9,224	4,298	2,456
Mahoning	19,328	24,758	6,539	9,144	535	108
Marion	15,127	20,827	10,188	10,915	2,067	280
Medina	23,666	28,514	12,326	15,203	2,654	319
Meigs	14,345	10,242	2,871	2,181	183	822
Mercer	16,843	18,928	12,658	16,166	12,544	200
Miami	7,444	7,556	16,087	12,090	8,964	4,206
Monroe	24,288	31,154	3,663	3,559	1,911	69
Montgomery	13,302	14,435	17,515	14,978	767	4,961
Morgan	21,701	22,316	4,390	5,178	1,964	101
Morrow	23,453	26,962	10,825	13,825	1,666	180
Muskingum	38,129	34,990	6,129	6,696	2,677	75
Noble	23,769	21,708	2,128	2,140	740	24
Ottawa	11,775	14,697	3,059	2,643	683	37
Paulding	13,363	14,684	1,905	1,773	1,376	441

MEADOW AND CLOVER—Concluded.

Counties.	Meadow.		Clover.			
	Acres in grass (other than clover), 1899.	Tons of hay produced, 1899.	Acres grown, 1899.	Tons of hay produced, 1899.	Bushels of seed produced, 1899.	Acres plowed under for manure, 1899.
Perry	20,900	18,210	7,705	8,110	6,110	127
Pickaway	11,954	9,983	11,997	9,188	12,256	3,220
Pike	6,755	5,306	5,911	3,177	2,265	1,926
Portage	25,127	33,559	8,012	11,953	1,844	462
Preble	8,715	7,581	23,216	11,597	6,640	12,791
Putnam	18,303	19,613	5,956	6,697	4,396	775
Richland	21,197	26,464	15,690	19,387	5,294	750
Ross	18,819	10,354	10,147	7,649	11,191	4,172
Sandusky	15,675	18,415	10,882	10,064	3,436	504
Scioto	11,630	9,649	3,901	2,601	738	1,679
Seneca	24,231	29,643	16,962	20,941	8,683	1,992
Shelby	11,483	10.392	13,083	12,637	6,342	2.123
Stark	36,053	51,927	13,651	18,002	3,553	544
Summit	22,763	29,509	4,830	6,150	597	62
Trumbull	46,491	61,407	3,647	5,017	229	181
Tuscarawas	38,152	55,817	3,940	4,659	2,534	108
Union	18,849	19,436	11.398	13,979	3,112	514
Van Wert	22,100	24,716	5,252	6,722	3,694	458
Vinton	12,908	8,751	1,362	1,068	330	51
Warren	15,283	16,120	12,320	8,522	4,952	4,161
Washington	31,222	25,709	2,382	2,444	721	264
Wayne	29,639	41,649	16,916	21,305	4,454	514
Williams	27,029	28,843	4,557	4,744	2,880	98
Wood	20,236	23,121	7,275	7,463	4,080	1,045
Wyandot	18,347	23,731	15,432	20,418	7,983	1,196
Totals	1,776,075	1,972,659	732,169	749,225	350,777	97,196

TOBACCO, FLAX AND IRISH POTATOES.

Counties.	Tobacco.		Flax.			Irish Potatoes.		
	Acres planted, 1899.	Pounds produced, 1899.	Acres sown, 1899.	Bushels of seed, 1899.	Pounds of fiber, 1899.	Acres planted, 1899.	Bushels produced, 1899.	Acres (estimated) for crop of 1900.
Adams	2,551	2,131,862	......	......	....	227	13,701	178
Allen	......	....	......	......	....	818	51,029	818
Ashland	......	....	1,471	22,273	1,365,500	954	93,509	965
Ashtabula	......	....	......	......	....	3,801	236,789	3,383
Athens	9	2,600	......	......	....	474	33,665	334
Auglaize	13	11,550	......	......	....	859	45,914	886
Belmont	605	704,452	......	......	....	1,049	90,658	1,012
Brown	4,614	4,534,064	......	27	....	523	24,745	423
Butler	1,153	1,029,585	15	90	....	920	63,276	1,015
Carroll	......	....	......	......	....	714	63,610	560
Champaign	61	55,262	......	......	....	396	27,485	408
Clark	230	222,335	......	......	....	765	49,355	838
Clermont	3,005	2,476,932	......	......	....	1,499	69,744	770
Clinton	91	74,624	2	25	....	617	37,002	457
Columbiana	......	....	......	......	....	1,945	184,534	1,907
Coshocton	......	....	......	......	....	1,978	85,070	985
Crawford	......	....	38	250	400	1,415	109,739	1,480
Cuyahoga	......	....	......	......	....	7,018	551,647	6,876
Darke	10,956	10,451,175	11	100	....	1,284	90,034	1,332
Defiance	6	3,950	11	138	....	1,129	108,318	1,167
Delaware	......	....	......	......	....	636	31,619	520
Erie	......	....	......	......	....	3,149	263,408	3,382
Fairfield	......	150	......	......	....	1,243	84,054	1,207
Fayette	......	....	......	......	....	107	6,651	58
Franklin	......	....	......	......	....	1,538	68,766	1,522
Fulton	......	....	26	343	....	1,229	131,068	2,225
Gallia	832	721,720	......	......		319	15,205	227
Geauga	......	....	......	......	....	2,907	228,170	3,229
Greene	609	489,975	......	......	....	711	51,225	461
Guernsey	116	99,085	1	5	....	533	42,216	507
Hamilton	202	189,270	16	......	....	3,645	263,909	3,240
Hancock	......	....	......	......	....	1,211	88,728	1,231
Hardin	......	....	......	......	....	1,131	70,502	910
Harrison	......	....	......	......	....	537	32,977	317
Henry	1/8	100	23	283	....	1,106	100,657	1,096
Highland	32	33,650	......	......	....	383	20,043	312
Hocking	......	....	......	......	....	721	54,579	722
Holmes	......	....	......	......	....	847	79,833	734
Huron	......	....	195	1,718	287,300	1,467	96,619	1,475
Jackson	......	....	......	......	....	305	17,637	261
Jefferson	11	7,800	......	......	....	630	58,241	563
Knox	......	....	......	......	....	596	44,286	516
Lake	......	....	......	......	....	2,111	155,542	2,032
Lawrence	114	70,848	......	......	....	287	20,039	321
Licking	1	2,000	......	......	....	1,317	106,814	1,369
Logan	18	16,700	1	10	....	503	25,702	543
Lorain	......	178	72	774	31,875	2,123	186,144	1,971
Lucas	......	25	36	500	....	3,191	280,703	2,896
Madison	......	....	......	......	....	315	15,586	362
Mahoning	107	75,210	......	......	....	4,492	172,425	1,903
Marion	......	....	......	......	....	840	58,589	837
Medina	201	223,966	329	2,719	55,400	2,535	216,759	2,352
Meigs	26	23,900	......	......	....	750	42,305	595
Mercer	38	30,600	1	10	....	589	31,835	616
Miami	3,488	3,640,545	52	204	1,006	838	71,413	855
Monroe	615	728,515	1	7	....	1,551	121,006	1,316
Montgomery	14,332	13,691,551	......	......	....	1,284	72,305	1,319
Morgan	44	23,852	8	19	....	517	38,204	426
Morrow	......	....	......	......	....	947	82,940	929
Muskingum	......	....	......	......	....	930	67,285	746
Noble	622	642,144	......	......	....	748	52,563	654

TOBACCO, FLAX AND IRISH POTATOES—Concluded.

Counties.	Tobacco.		Flax.			Irish Potatoes.		
	Acres planted, 1899.	Pounds produced, 1899.	Acres sown, 1899.	Bushels of seed, 1899.	Pounds of fiber, 1899.	Acres planted, 1899.	Bushels produced, 1899.	Acres (estimated) for crop of 1900.
Ottawa						617	34,506	542
Paulding	6	6,950	1	7		551	155,748	615
Perry	4	2,000				758	57,580	725
Pickaway						436	31,765	400
Pike	52	26,070				617	36,346	607
Portage			13	90	4,000	6,742	712,378	7,557
Preble	6,142	5,724,404				586	40,572	564
Putnam	½	50	10		400	1,084	74,619	968
Richland			128	1,086	56,800	1,601	161,448	1,767
Ross						617	48,194	526
Sandusky						1,835	162,899	1,917
Scioto	439	348,315				939	81,045	905
Seneca	2	3,600				1,520	113,655	1,540
Shelby	260	173,230	15	84		712	36,202	750
Stark	1	1,000	4	5		3,426	314,916	3,687
Summit						2,669	239,935	2,866
Trumbull						3,292	318,782	3,286
Tuscarawas						1,821	139,306	1,933
Union	½	150				251	10,572	245
Van Wert			2	20		850	60,440	835
Vinton		2,200				362	21,052	313
Warren	4,359	3,446,973				456	25,520	449
Washington	7	4,630				1,680	122,314	1,417
Wayne	267	334,710	151	1,117	36,100	2,817	241,197	2,796
Williams						1,241	112,681	1,067
Wood			23	75		1,103	94,274	1,130
Wyandot						797	57,312	841
Totals	56,242	52,484,457	2,656	31,979	1,838,781	118,584	9,203,633	111,799

SWEET POTATOES, ONIONS AND BROOM CORN.

Counties.	Sweet Potatoes.		Onions.		Broom Corn.	
	Acres planted, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Pounds broom brush produced, 1899.
Adams	14	972	......	......	3	1,800
Allen	......	......	2	150	......	......
Ashland	42	4,494	40	900	......	800
Ashtabula	......	......	90	26,087	......	......
Athens	3	345	4	230	......	......
Auglaize	......	......	......	......	189	86,110
Belmont	......	......	5	380	6	2,000
Brown	12	835	1	27	16	300
Butler	13	1,750	13	3,475	12	6,000
Carroll	1	90	5	473	4	......
Champaign	4	357	1	225	149	345,305
Clark	12	2,610	7	720	2	900
Clermont	77	4,098	3	260	......	......
Clinton	4	409	2	205	½	150
Columbiana	......	......	2	340	......	100
Coshocton	1	35	1	300	1	50
Crawford	1½	38	1	20	......	......
Cuyahoga	1	80	63	16,070	5	......
Darke	45	2,671	2	271	51	39,150
Defiance	3	339	1	100	......	......
Delaware	......	......	......	......	......	......
Erie	7	317	8	2,280	8	......
Fairfield	3	654	2	440	2	700
Fayette	2	30	2	175	16	3
Franklin	4	251	36	1,480	19	6,950
Fulton	1	155	4	1,510	11	11,400
Gallia	6	545	1	90	7	5,495
Geauga	6	250	9	1,960	......	......
Greene	1	70	1	100	1	700
Guernsey	1¼	55	......	......	⅙	630
Hamilton	87	7,947	......	......	25	18,000
Hancock	⅛	60	1/11	100	17	88
Hardin	......	40	828	193,250	......	......
Harrison	1	76	......	22	......	......
Henry	1	55	6	199	4	1,200
Highland	4	290	2	156	11	3,110
Hocking	7	430	1	65	4	2,400
Holmes	1	60	......	......	1	10
Huron	1	10	9	1,457	......	......
Jackson	2	183	2	366	......	......
Jefferson	......	8	3½	392	......	......
Knox	1	160	......	......	61	......
Lake	......	......	885	254,843	3	......
Lawrence	146	21,622	12	1,051	......	......
Licking	2	158	17	1,400	22	12,800
Logan	2	113	3	90	......	......
Lorain	6	700	16	11,375	......	......
Lucas	2	150	8	1,543	......	......
Madison	1	20	5	417	......	......
Mahoning	......	......	6	665	3	15
Marion	1	59	¼	100	23	14,550
Medina	......	......	214	125,872	......	......
Meigs	13	1,485	1	70	1	276
Mercer	1	85	1	50	18	1,080
Miami	37	1,080	24	27	20	10,630
Monroe	¼	20	¼	1,102	¼	472
Montgomery	27	2,335	7	1,242	50	44,900
Morgan	8	916	1	128	1	260
Morrow	......	58	3	960	......	......
Muskingum	25	8,611	9	860	1	60
Noble	2	65	......	......	......	......
Ottawa	......	......	......	......	......	......
Paulding	9 1/16	41	......	......	1	400

SWEET POTATOES, ONIONS AND BROOM CORN—Concluded.

Counties.	Sweet Potatoes.		Onions.		Broom Corn.	
	Acres planted, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Bushels produced, 1899.	Acres planted, 1899.	Pounds broom brush produced, 1899
Perry	10	1,195	8	350	....	....
Pickaway	....	....	1	400	....	....
Pike	3	185	11	1,150	....	....
Portage	....	4	12	3,303	....	....
Preble	27	1,897	....	45	4	3,180
Putnam	1	82	22	5,925	....	20
Richland	2	177	2	352	....	....
Ross	3	153	153	29,915	23	8,400
Sandusky	1	5	2	900	....	....
Scioto	21	1,275	4	345	2	280
Seneca	....	20	1	60	....	....
Shelby	1 1/16	149	1/8	48	21	11,000
Stark	2	290	8	1,616	34	3,832
Summit	....	2	8	1,950	3	250
Trumbull	1/3	44	27	7,676	4	1,000
Tuscarawas	1	28	2	129	4	664
Union	....	....	1	100	9	5,055
Van Wert	7	430	5	245	10	8,000
Vinton	¼	25	....	....	....	....
Warren	27	855	....	....	6	3,600
Washington	123	18,925	2	520	2	1,000
Wayne	2	481	299	157,375	3	400
Williams	1	120	....	....	8	2,000
Wood	1	63	29	3,537	....	....
Wyandot	....	21	24	13,200	1	2,000
Totals	888	94,013	2,990	861,809	907	669,475

SORGHUM, MAPLE AND BEES.

Counties.	Sorghum.			Maple Products.			Bees.	
	Acres planted, 1899.	Pounds of sugar, 1899.	Gallons of syrup, 1899.	Number of trees from which sugar or syrup was made, 1900.	Pounds of sugar, 1900.	Gallons of syrup, 1900.	Number of hives, 1899.	Pounds of honey, 1899.
Adams	111	55	6,110	4,897	20	1,716	1,340	20,210
Allen	51	297	1,949	16,185	310	5,242	766	6,389
Ashland	15	½	486	86,113	36,391	21,034	345	2,459
Ashtabula	....	....	....	257,571	94,822	65,476	1,006	13,117
Athens	21	....	1,635	2,636	675	760.	566	9,860
Auglaize	232	1.303	7,298	11,230	230	3,644	623	4,471
Belmont	76	....	3,730	4,215	65	2,239	738	3,957
Brown	31	840	2,105	525	50	135	464	3,532
Butler	16	....	440	2,655	....	1,231	356	7,830
Carroll	11	....	648	754	48	396	269	1,193
Champaign	18	....	1,081	20,058	7,262	9,530	731	8,710
Clark	28	38	2,464	469	50	295	429	6,253
Clermont	65	863	1,572	1,223	15	657	768	11,270
Clinton	56	....	1,968	32,264	1,545	13,111	418	5,124
Columbiana	5	....	63	50,662	1,510	16,575	336	1,816
Coshocton	35	201	2,274	1,962	215	981	655	4,291
Crawford	38	27	2,061	27,963	1.223	9,344	371	1,765
Cuyahoga	2	....	180	83,529	10,326	20.212	326	2,760
Darke	69	15	7,078	8,911	380	2.827	1,102	15,888
Defiance	155	....	13,637	8,901	30	2,911	242	1,649
Delaware	18	15	464	35,971	840	9,667	259	2,608
Erie	4	....	267	11,209	3.185	3,338	183	4,327
Fairfield	15	....	1,288	7,079	353	2,665	339	2,381
Fayette	8	99	367	1,476	332	360	49	316
Franklin	12	35	557	1,693	170	1,065	446	2,700
Fulton	40	....	3,150	3,744	....	1,065	315	6,278
Gallia	171	197	13,170	663	214	179	1,068	13,235
Geauga	....	....	....	611,979	134,657	168,099	672	7,050
Greene	6	....	210	21,915	1,835	7,583	392	2,966
Guernsey	73	1	4,697	280	20	136	445	2,531
Hamilton	2	200	....	....	4	231	370	10,950
Hancock	27	1	2,010	36,021	460	10,346	972	5,698
Hardin	9	20	940	5,908	1,335	1,073	702	3,869
Harrison	19	118	701	2,105	12	1,241	545	2.177
Henry	114	....	9,048	4,184	15	1,246	283	4,143
Highland	16	....	669	7,693	930	3,011	535	3,571
Hocking	54	50	3,833	558	....	330	468	2,493
Holmes	7	....	772	4,380	927	1,934	339	2,320
Huron	42	44	1,873	70,135	8,251	18,101	550	3.206
Jackson	48	....	3,179	30	....	35	341	4.552
Jefferson	20	....	812	5.706	69	3,426	370	2,513
Knox	2	....	108	34,899	11,589	14,147	607	6,815
Lake	....	....	....	50,123	14,440	7,657	152	945
Lawrence	339	754	30,191	250	220	100	932	7,774
Licking	27	....	1,405	46,047	1,690	18,573	823	4,877
Logan	19	....	911	94,021	105,749	42,509	978	6,755
Lorain	14	370	879	89,840	39.894	21,722	160	2,330
Lucas	17	....	837	250	....	140	428	8,785
Madison	6	188	93	360	....	75	305	2,961
Mahoning	....	....	....	85,450	7,485	27,005	388	4,601
Marion	25	....	1,151	2,952	613	413	329	1,816
Medina	....	....	....	219,515	52,874	52,728	635	566,529
Meigs	69	195	4,296	186	20	146	696	8,294
Mercer	194	1,700	7,722	368	100	100	431	4.198
Miami	23	....	2,327	7,510	325	3,361	328	7,617
Monroe	245	....	18,712	774	730	192	825	5.547
Montgomery	21	19	1,793	14,733	525	4,915	933	27,962
Morgan	112	....	3,950	275	....	185	1,243	3,848
Morrow	5	75	248	89,625	13,118	30,844	313	1,346
Muskingum	21	255	671	1,311	....	659	941	7,443
Noble	163	75	10,340	298	380	72	361	3,425
Ottawa	2	40	....	200	5	30	98	8,610
Paulding	87	....	5,883	481	40	159	830	5,215

SORGHUM, MAPLE AND BEES—Concluded.

Counties.	Sorghum.			Maple Products.			Bees.	
	Acres planted, 1899.	Pounds of sugar, 1899.	Gallons of syrup, 1899.	Number of trees from which sugar or syrup was made, 1900.	Pounds of sugar, 1900.	Gallons of syrup, 1900.	Number of hives, 1899.	Pounds of honey, 1899.
Perry	57	....	3,500	16,215	685	8,120	780	4,925
Pickaway	3	....	370	755	75	496	131	1,170
Pike	87	110	5,262	620	50	266	469	4,227
Portage	....	....	....	387,314	13,765	141,051	697	7,777
Preble	36	....	3,100	16,084	189	15,167	460	5,265
Putnam	144	86	9,057	4,325	53	1,349	1,029	8,858
Richland	15	135	1,167	72,782	8,224	22,081	424	2,611
Ross	30	88	1,598	6,132	....	2,933	604	6,234
Sandusky	16	461	660	2,572	205	1,048	291	4,050
Scioto	198	30	7,383	147	....	53	566	5,071
Seneca	28	....	1,339	27,515	768	7,918	623	7,247
Shelby	84	222	5,505	4,105	6	1,520	520	2,739
Stark	21	223	810	33,386	200	11,045	648	5,927
Summit	....	....	....	49,389	12,345	15,127	446	3,507
Trumbull	7	1	88	243,519	31,311	73,834	862	4,408
Tuscarawas	22	8	784	3,754	28	2,588	647	4,019
Union	21	100	883	31,060	9,398	8,060	392	21,303
Van Wert	36	929	896	142	....	63	416	2,873
Vinton	44	1,294	713	599	38	492	374	1,409
Warren	5	22	51	7,790	50	3,026	275	3,914
Washington	51	215	2,364	300	....	150	698	8,973
Wayne	13	....	856	38,026	4,534	11,194	743	4,929
Williams	37	....	3,287	43,029	890	12,325	332	3,518
Wood	52	....	3,334	3,851	200	1,229	311	2,279
Wyandot	17	58	935	10,877	646	3,303	455	2,152
Totals	4,155	12,072	250,245	3,199,228	641,733	983,667	47,423	1,052,616

EGGS, MILK, BUTTER AND CHEESE.

Counties.	Eggs.		Milk.	Butter.		Cheese.	
	Number dozen produced, 1899.	Number dozen shipped beyond state, 1899.	Gallons sold for family use, 1899.	Pounds made in home dairies, 1899.	Pounds made in factories and creameries, 1899.	Pounds made in home dairies, 1899.	Pounds made in factories and creameries, 1899.
Adams	673,256	300	8,090	433,325	....	....	....
Allen	911,412	....	324,307	567,673	28,090	14,993	....
Ashland	759,210	....	108,404	496,958	23,990	19,459	162,000
Ashtabula	800,447	7,596	1,052,073	750,883	156,166	19,870	3,680,751
Athens	514,055	2,740	81,845	442,620	....	1,350	....
Auglaize	758,874	175,000	96,171	485,877	201,373	2,192	....
Belmont	752,790	1,180	595,105	743,571	46,681	12,905	....
Brown	996,501	....	198,320	565,096	400	....	....
Butler	1,308,922	....	669,679	587,076	3,700	20,595	....
Carroll	450,067	2,100	28,966	560,488	73,934	2,912	2,509
Champaign	557,745	3,750	506,695	508,745	49,890	4,850	139,130
Clark	429,837	36,219	428,058	545,539	76,730	1,800	....
Clermont	787,803	....	290,473	691,673	7,400	....	....
Clinton	531,850	20,450	141,628	355,116	105,034	600	....
Columbiana	773,467	7,975	3,134,840	621,901	464,349	43,968	354,030
Coshocton	654,871	42,185	142,091	556,191	2,265	166	15,500
Crawford	742,052	57,010	231,120	474,202	7,160	....	....
Cuyahoga	517,716	....	5,037,762	620,348	28,485	5,000	106,400
Darke	1,442,176	....	233,420	1,089,641	4	8,532	....
Defiance	710,419	....	117,110	472,183	26,600	200	....
Delaware	753,083	....	143,482	608,704	115,747	....	....
Erie	371,095	1,326	230,505	296,968	66,779	85	70,450
Fairfield	882,051	40,075	77,972	719,738	....	....	....
Fayette	386,474	....	45,140	198,949	....	337	....
Franklin	847,232	10,000	2,049,593	771,485	59,060	100	100
Fulton	716,775	20	27,580	395,449	30,820	....	877,927
Gallia	725,117	150	84,060	545,443	....	400	....
Geauga	589,980	....	3,412,227	273,651	260,940	....	2,168,609
Greene	678,742	....	119,675	614,470	....	2,050	....
Guernsey	505,222	2,300	55,593	551,511	15,560	....	26,203
Hamilton	348,432	3,175	2,290,536	1,222,429	73,573	10,790	....
Hancock	811,396	600	235,152	802,065	....	750	....
Hardin	646,695	....	161,766	386,109	175	....	....
Harrison	406,733	....	80,460	469,120	95,295	....	....
Henry	1,045,224	....	73,162	584,382	78,560	....	4,350
Highland	663,991	....	40,695	430,645	....	....	....
Hocking	347,844	....	4,680	315,663	....	....	....
Holmes	825,019	....	15,150	453,514	20,850	44,200	8,000
Huron	659,360	115	186,120	590,925	8,595	8,600	56,330
Jackson	418,872	5,875	11,055	299,678	....	....	....
Jefferson	375,819	60	540,726	529,304	32,466	34,100	20,000
Knox	709,636	200	79,750	647,058	....	....	....
Lake	283,628	600	1,041,499	846,086	900	600	8,700
Lawrence	250,107	9,700	34,550	260,546	....	50	....
Licking	1,063,312	....	302,461	1,020,848	124,560	5,600	....
Logan	677,243	17,265	872,210	399,021	174,740	13,550	....
Lorain	617,723	666	867,612	619,426	228,077	100,598	1,200,420
Lucas	382,908	....	1,277,495	370,084	26,573	600	4,306
Madison	476,291	54,425	209,064	280,318	1,000	400	....
Mahoning	613,658	5,120	1,394,948	1,204,089	100,857	30,200	813,000
Marion	822,374	150	93,601	495,520	....	....	....
Medina	771,721	....	709,415	739,816	510,298	16,375	323,396
Meigs	596,961	400	23,966	443,734	....	6,600	....
Mercer	904,221	....	71,070	387,252	120,050	....	....
Miami	558,570	300	242,397	496,295	3,550	15,340	1,300
Monroe	835,911	36,140	22,865	524,445	22,290	145,606	321,560
Montgomery	728,376	....	1,521,500	764,707	163,484	2,800	400
Morgan	949,180	....	9,353	540,282	9,406	....	....
Morrow	832,624	....	40,378	666,907	....	10,125	....
Muskingum	753,741	2,180	369,078	686,718	25,770	100	....
Noble	710,936	3,500	1,836	475,656	6,200	200	....
Ottawa	167,657	....	16,836	234,238	10,300	....	....
Paulding	709,458	....	20,895	400,665	....	2,760	....

EGGS, MILK, BUTTER AND CHEESE—Concluded.

Counties.	Eggs.		Milk.	Butter.		Cheese.	
	Number dozen produced, 1899.	Number dozen shipped beyond state, 1899.	Gallons sold for family use, 1899.	Pounds made in home dairies, 1899.	Pounds made in factories and creameries, 1899.	Pounds made in home dairies, 1899.	Pounds made in factories and creameries, 1899.
Perry	521,240	....	25,470	396,650	25,700	30	....
Pickaway	553,947	....	57,245	381,622	5,900	1,700	....
Pike	380,759	....	9,255	178,651	200	....	....
Portage	632,038	525	692,547	679,859	69,929	98,550	909,524
Preble	828,373	350	62,600	697,918	100,260	2,500	600
Putnam	957,826	136,785	18,240	485,784	26,882	5,100	....
Richland	735,192	40	404,079	602,249	7,000	15,530	....
Ross	388,571	920	184,155	303,104	....	....	....
Sandusky	578,095	....	195,485	39,135	30,000	....	....
Scioto	325,746	18,526	98,958	283,834	8,500	905	....
Seneca	758,452	....	13,900	717,151	17,760	....	17,000
Shelby	1,150,857	26,320	144,408	402,411	82,700	200	....
Stark	841,653	16,134	1,169,404	627,069	290,119	149,890	403,010
Summit	457,399	....	2,298,375	534,386	767,810	1,000	163,370
Trumbull	754,086	20	680,907	1,057,764	187,145	34,450	2,711,105
Tuscarawas	578,136	....	297,130	512,374	28,017	46,200	521,150
Union	821,486	....	349,891	453,249	30,865	....	....
Van Wert	965,854	....	32,390	845,813	....	....	....
Vinton	296,211	....	5,550	252,653	....	....	....
Warren	591,054	....	337,242	493,236	167,079	....	....
Washington	1,002,540	51,478	172,486	726,591	37,775	1,725	....
Wayne	956,133	2,300	351,566	927,922	75,114	38,130	172,406
Williams	719,376	....	37,500	479,239	145,320	....	....
Wood	789,987	37,840	354,722	714,015	62,445	600	....
Wyandot	666,241	....	67,790	506,106	4,650	20,700	....
Totals	60,376,115	842,085	40,590,560	48,241,804	5,861,896	1,029,518	15,293,536

ORCHARDS.

Counties.	Apples.		Peaches.		Pears.	
	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.
Adams	2,950	88,613	106	130	....	....
Allen	2,498	103,298	2	48	7	400
Ashland	3,340	149,547	33	62	2	273
Ashtabula	3,621	61,636	142	714	16	436
Athens	4,164	119,120	3,895	....	10	105
Auglaize	2,320	117,246	4	....	56	508
Belmont	5,384	119,321	514	51	70	719
Brown	2,704	97,665	22	250	1	373
Butler	1,026	18,308	43	633	31	1,331
Carroll	4,104	59,228	103	71	11	61
Champaign	2,048	74,750	11	18	7	404
Clark	1,808	63,358	20	13	8	671
Clermont	4,731	128,616	1,829	20	492	5,991
Clinton	2,225	78,913	28	....	19	560
Columbiana	7,157	208,658	174	7	28	509
Coshocton	4,686	136,535	1,588	44	43	13
Crawford	3,468	157,689	4	3	23	252
Cuyahoga	3,856	225,949	176	257	160	6,412
Darke	3,972	113,259	7	33	10	379
Defiance	3,012	14 ,270	48	345	32	411
Delaware	2,948	104,286	4	3	....	169
Erie	2,366	53,661	1,393	299	151	470
Fairfield	3,931	271,761	31	10	17	253
Fayette	1,033	40,737	14	33	1	402
Franklin	3,459	185,979	35	17	46	375
Fulton	3,060	106,173	87	750	14	294
Gallia	17,627	149,323	348	5	56	170
Geauga	2,756	75,157	69	....	61	694
Greene	1,886	60,223	72	22	10	276
Guernsey	5,109	142,030	937	23	64	249
Hamilton	2,637	51,398	....	678	....	12,530
Hancock	4,934	192,359	44	250	36	688
Hardin	2,521	112,330	....	4	1	172
Harrison	3,537	39,154	267	....	22	223
Henry	3,247	147,609	19	533	13	682
Highland	3,480	131,314	93	....	11	778
Hocking	2,762	143,843	577	25	2	10
Holmes	3,854	201,879	58	....	....	71
Huron	4,049	138,249	77	....	5	115
Jackson	2,715	82,625	195	50	3	7
Jefferson	3,831	63,000	95	7	27	123
Knox	3,510	9,637	242	110	76	38
Lake	1,668	49,570	759	991	260	3,573
Lawrence	4,495	152,006	518	....	45	532
Licking	5,296	162,375	793	7	23	395
Logan	2,590	111,893	28	33	5	157
Lorain	3,656	55,348	108	1,170	41	660
Lucas	2,344	99,040	381	6,735	152	4,829
Madison	1,130	35,345	7	55	....	95
Mahoning	3,703	135,712	75	15	121	837
Marion	2,156	94,233	5	1	2	216
Medina	3,332	179,472	10	5	7	392
Meigs	3,962	103,472	750	100	27	5
Mercer	2,373	85,025	6	20	34	130
Miami	1,597	67,934	3	63	7	465
Monroe	5,349	302,650	52	13	9	303
Montgomery	3,628	76,621	46	29	75	3,136
Morgan	3,999	217,996	398	18	16	142
Morrow	3,669	182,347	9	....	1	85
Muskingum	5,277	273,657	1,339	12	19	204
Noble	3,557	160,220	376	....	11	177
Ottawa	1,856	61,188	6,071	128,223	113	4,369
Paulding	1,933	86,411	2	26	½	282
Perry	2,925	157,280	151	1	¼	55
Pickaway	1,838	68,976	61	45	19	163

ORCHARDS—Continued.

Counties.	Apples.		Peaches.		Pears.	
	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.
Pike	2,722	80,816	193	....	14	125
Portage	4,034	152,667	350	17	34	344
Preble	2,330	81,886	46	37	36	809
Putnam	2,991	125,019	6	280	32	464
Richland	4,793	218,464	234	4	57	640
Ross	3,144	130,714	1,407	1,012	6	65
Sandusky	3,316	107,359	683	401	15	219
Scioto	2,419	58,629	187	12	18	11
Seneca	4,005	96,161	84	93	2	214
Shelby	1,889	98,137	18	14	16	879
Stark	6,552	284,050	89	75	44	2,869
Summit	3,273	223,916	20	91	23	500
Trumbull	4,588	196,306	185	3	53	304
Tuscarawas	5,989	232,060	276	10	3	99
Union	2,376	99,408	9	15	4	128
Van Wert	2,873	103,431	2	61	7	592
Vinton	2,532	67,887	280	....	....	....
Warren	2,386	57,223	181	32	84	1,413
Washington	9,595	308,883	595	297	15	117
Wayne	5,080	288,785	6	82	3	414
Williams	4,340	124,693	1	15	5	1,249
Wood	5,073	194,613	116	955	76	1,797
Wyandot	2,527	72,129	10	....	1	185
Totals	315,486	11,077,213	30,309	146,636	3,178	73,236

ORCHARDS—Continued.

Counties.	Orchards.					
	Cherries.		Plums.		Other small fruits.	
	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.
Adams	2	90	4	....	5	400
Allen	7	234	8	271	12	458
Ashland	22	195	10	99	30	2,558
Ashtabula	7	263	5	35	58	3,426
Athens	10	244	8	80	27	755
Auglaize	3	49	6	82	7	730
Belmont	85	341	53	115	374	13,626
Brown	....	88	....	36	1	5
Butler	13	298	4	15	94	3,896
Carroll	4	249	6	45	55	2,933
Champaign	1	461	2	158	44	2,400
Clark	27	1,333	34	929	122	6,508
Clermont	54	336	11	430	709	22,005
Clinton	2	646	5	170	17	672
Columbiana	70	1,484	40	120	194	14,833
Coshocton	33	123	....	....	7	194
Crawford	17	135	13	75	19	810
Cuyahoga	17	696	42	1,438	515	24,465
Darke	39	816	25	145	108	4,001
Defiance	13	188	14	143	112	5,766
Delaware	....	188	....	243	....	20
Erie	34	77	87	278	282	12,497
Fairfield	1	625	....	21	426	14,743
Fayette	11	968	1	61	25	2,769
Franklin	10	262	32	147	34	2,293
Fulton	4	296	15	433	127	4,243
Gallia	9	111	29	116	114	3,286
Geauga	11	58	2	5	7	315
Greene	1	316	2	221	40	1,530
Guernsey	14	52	26	19	88	1,374
Hamilton	....	1,804	....	147	....	....
Hancock	19	634	23	1,038	65	1,824
Hardin	....	65	....	461	20	1,872
Harrison	3	294	2	19	30	904
Henry	12	223	1½	227	22	1,190
Highland	33	40	8	6	8	285
Hocking	25	938	3	21	3	95
Holmes	....	80	4	16	18	695
Huron	8	139	61	47	28	1,437
Jackson	12	228	1	10	11	1,064
Jefferson	1½	209	2	63	23	1,322
Knox	4	....	....	....	5	390
Lake	24	326	75	539	241	6,142
Lawrence	18	363	18	310	124	1,978
Licking	5	194	2	140	80	5,692
Logan	15	148	17	222	23	1,344
Lorain	2	34	7	101	92	1,020
Lucas	30	1,553	50	474	320	10,794
Madison	11	224	3	164	4	123
Mahoning	62	193	19	53	77	6,181
Marion	60	125	2	220	55	2,588
Medina	6	340	12	112	36	3,530
Meigs	8	50	45	304	247	9,707
Mercer	6	34	7	13	28	938
Miami	30	1,016	15	307	50	2,929
Monroe	¼	373	2	67	34	2,351
Montgomery	39	1,543	3	224	333	8,002
Morgan	17	99	36	180	64	4,195
Morrow	6	62	3	64	30	1,228
Muskingum	25	409	10	8	126	6,003
Noble	1	32	5	....	47	2,020

ORCHARDS—Concluded.

Counties.	Orchards.					
	Cherries.		Plums.		Other small fruits.	
	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.	Acres occupied, 1899.	Bushels produced, 1899.
Ottawa	40	650	378	5,466	33	621
Paulding	½	81	¾	53	4	129
Perry	6	960	....	....	11	425
Pickaway	18	186	6	2	29	1,768
Pike	14	70	5	10	7	5
Portage	17	260	9	127	40	1,878
Preble	44	857	23	244	70	3,640
Putnam	1	266	6	283	8	531
Richland	21	715	29	107	94	4,578
Ross	20	94	19	56	149	4,676
Sandusky	40	1,162	32	125	106	4,793
Scioto	7	86	7	25	96	4,390
Seneca	....	253	....	291	20	1,841
Shelby	2	85	13	248	63	2,329
Stark	35	555	14	114	89	6,157
Summit	10	690	7	242	10	1,550
Trumbull	70	195	29	16	69	4,430
Tuscarawas	7	447	12	43	28	2,120
Union	3	75	8	101	18	186
Van Wert	24	878	12	280	16	405
Vinton	1	19	....	2	2	78
Warren	4	267	4	57	28	1,532
Washington	5	72	6	28	229	10,171
Wayne	6	1,302	9	107	24	1,177
Williams	5	303	2	155	7	445
Wood	39	1,441	136	754	111	3,452
Wyandot	1	119	9	19	18	960
Totals	1,393	35,027	1,685	20,392	7,206	305,563

GRAPES AND WINE.

Counties.	Grapes and wine.			
	Acres (new) vineyard planted, 1899.	Whole number of acres in vineyard, 1899.	Pounds of grapes gathered in 1899.	Gallons of wine pressed in 1899.
Adams	....	1	....	250
Allen	12	16	74,685	3,601
Ashland	200	1,151	19,415	354
Ashtabula	48	24	231,400	....
Athens	....	....	....	300
Auglaize	2	77	6,815	364
Belmont	3	84	101,500	1,390
Brown	4	1	50	180
Butler	3	10	16,400	125
Carroll	....	1	14,610	168
Champaign	4	6	3,100	350
Clark	3	38	38,227	1,116
Clermont	16	115	88,270	2,062
Clinton	....	....	600	87
Columbiana	....	....	800	....
Coshocton	....	10	11,699	854
Crawford	½	25	61,707	3,474
Cuyahoga	77	3,131	8,420,260	31,711
Darke	6	5	17,020	337
Defiance	4	49	96,925	3,296
Delaware	¾	....	2,500	....
Erie	197	1,352	2,332,325	93,367
Fairfield	....	69	26,740	4,847
Fayette	....	1	600	....
Franklin	2	4	14,800	75
Fulton	3	6	11,100	2,902
Gallia	2	1⅓	1,000	....
Geauga	....	191	1,201,270	1,129
Greene	1	7	3,700	280
Guernsey	1½	1⅓	2,750	....
Hamilton	13	89	90,080	5,176
Hancock	2	17	76,704	2,644
Hardin	....	2	31,700	496
Harrison	1	....	1,700	200
Henry	2	13	18,720	1,229
Highland	....	2	1,250	35
Hocking	....	5	1,500	30
Holmes	....	¼	110	441
Huron	2	4	6,700	644
Jackson	....	1	250	....
Jefferson	19	8	3,840	100
Knox	100	....	....	11
Lake	20	2,957	6,439,974	10,160
Lawrence	....	2	3,925	....
Licking	1	4	14,700	....
Logan	....	10	22,640	70
Lorain	2	1,086	3,657,337	28,624
Lucas	24	201	552,510	7,273
Madison	1	1	7,250	21
Mahoning	....	....	300	55
Marion	2	4	39,480	255
Medina	3	11	24,500	825
Meigs	....	3	100	....
Mercer	1	39	12,820	1,840
Miami	....	8	15,360	196
Monroe	....	6	2,840	2,983
Montgomery	150	63	99,611	4,655
Morgan	....	....	....	....
Morrow	....	....	1,500	....
Muskingum	....	4	5,130	258
Noble	....	3	650	55

GRAPES AND WINE—Concluded.

Counties.	Grapes and wine.			
	Acres (new) vineyard planted, 1899.	Whole number of acres in vineyard, 1899.	Pounds of grapes gathered in 1899.	Gallons of wine pressed in 1899.
Ottawa	3	2,302	6,452,197	242,208
Paulding	⅝	15	18,100	117
Perry	1	7	6,650	3
Pickaway	....	....	1,000	123
Pike	2	20	350	50
Portage	8	17	8,250	520
Preble	....	6	20,210	50
Putnam	12	20	51,993	3,167
Richland	2	7	24,675	305
Ross	7	22	20,120	192
Sandusky	1	11	17,400	1,835
Scioto	1	....	400	34
Seneca	....	21	41,083	2,203
Shelby	6	6	22,085	890
Stark	4	85	22,093	989
Summit	....	½	900	24
Trumbull	....	13	21,300	90
Tuscarawas	8	25	50,280	4,412
Union	4	23	19,050	2,353
Van Wert	1	3	9,250	828
Vinton	....	....	....	....
Warren	5	4	3,700	65
Washington	1	1	300	120
Wayne	¾	9	57,920	2,411
Williams	....	10	62,502	1,392
Wood	10	81	248,921	3,394
Wyandot	¾	2	17,900	360
Totals	1,005	13,629	31,127,743	489,030

LANDS OWNED IN 1899.

Counties.	Lands owned in 1899.				
	Number of acres cultivated.	Number of acres pasture.	Number of acres woodland.	Number of acres lying waste.	Total number of acres owned.
Adams	91,817	97,875	72,118	27,947	289,757
Allen	140,456	23,792	33,042	1,400	198,690
Ashland	146,499	29,581	34,089	3,753	213,922
Ashtabula	132,017	126,336	45,564	4,186	308,103
Athens	50,056	111,823	31,635	7,988	201,502
Auglaize	136,024	23,488	37,391	1,457	198,360
Belmont	87,598	140,750	33,466	14,255	276,069
Brown	111,267	109,412	27,007	11,308	258,994
Butler	135,366	24,327	19,378	10,468	189,539
Carroll	77,858	98,056	25,938	5,656	207,508
Champaign	144,767	41,032	23,221	2,416	211,436
Clark	129,216	34,880	17,827	3,297	185,220
Clermont	112,522	66,929	21,325	21,233	222,009
Clinton	134,475	53,890	24,738	3,427	216,530
Columbiana	135,839	74,698	35,508	6,696	252,741
Coshocton	94,051	141,827	45,514	4,907	286,299
Crawford	131,711	38,932	31,737	2,615	204,995
Cuyahoga	99,649	55,062	15,049	5,749	175,509
Darke	255,070	25,748	48,824	7,521	337,163
Defiance	133,913	16,571	44,255	1,006	195,745
Delaware	199,962	69,238	26,324	3,090	298,614
Erie	86,540	17,544	9,210	4,894	118,188
Fairfield	35,082	94,134	29,404	9,074	167,694
Fayette	100,551	83,074	13,991	2,473	200,089
Franklin	144,508	61,603	16,302	7,902	230,315
Fulton	129,555	17,316	27,639	1,280	175,794
Gallia	70,067	117,124	31,563	14,197	232,951
Geauga	71,717	95,290	37,451	1,496	205,954
Greene	152,438	39,416	25,068	5,594	222,516
Guernsey	67,512	149,823	38,407	4,795	260,537
Hamilton	56,031	21,013	5,537	6,213	88,794
Hancock	185,567	39,256	45,120	2,217	272,160
Hardin	149,843	32,691	26,765	1,783	211,082
Harrison	58,255	112,619	26,265	2,645	199,784
Henry	148,005	7,361	31,660	2,983	190,009
Highland	113,536	123,032	40,389	6,104	283,061
Hocking	43,242	96,586	40,086	9,641	189,555
Holmes	108,998	61,092	36,101	7,177	213,368
Huron	164,941	64,910	29,612	3,799	263,262
Jackson	47,138	100,050	20,244	9,184	176,616
Jefferson	80,919	89,530	35,184	4,308	209,941
Knox	110,142	117,525	38,686	2,227	268,580
Lake	45,355	28,739	14,008	3,290	91,392
Lawrence	41,203	56,555	37,490	22,341	157,589
Licking	156,366	163,639	40,300	4,726	365,031
Logan	144,611	48,989	33,075	2,103	228,778
Lorain	127,645	77,339	25,639	2,619	233,242
Lucas	76,152	8,710	14,549	3,171	102,582
Madison	110,497	61,885	10,941	1,495	184,818
Mahoning	95,753	52,940	20,719	1,634	171,046
Marion	110,951	50,452	17,820	538	179,761
Medina	131,611	65,481	28,052	993	226,137
Meigs	63,082	91,148	30,309	6,139	190,678
Mercer	152,471	22,066	46,809	4,613	225,959
Miami	152,193	8,730	15,793	3,142	179,858
Monroe	74,436	112,989	44,529	19,583	251,537
Montgomery	170,410	17,610	22,633	8,548	219,201
Morgan	59,067	126,911	31,370	7,851	225,199
Morrow	115,181	66,467	32,841	2,126	216,615
Muskingum	98,019	202,991	46,617	8,925	356,552
Noble	56,426	154,224	26,418	2,971	240,039

LANDS OWNED IN 1899—Concluded.

Counties.	Lands owned in 1899.				
	Number of acres cultivated.	Number of acres pasture.	Number of acres woodland.	Number of acres lying waste.	Total number of acres owned.
Ottawa	27,366	15,945	11,411	4,454	59,176
Paulding	121,187	7,705	31,138	5,433	165,458
Perry	60,884	101,457	22,997	8,196	193,584
Pickaway	147,573	78,724	20,896	8,413	255,606
Pike	65,018	42,785	55,312	18,316	181,431
Portage	24,316	84,608	37,391	6,151	152,466
Preble	176,157	28,145	31,835	8,506	244,643
Putnam	165,603	19,781	39,005	3,682	228,071
Richland	168,466	37,985	44,691	4,027	255,169
Ross	119,744	88,501	46,506	13,439	268,190
Sandusky	140,970	20,438	23,658	5,014	190,080
Scioto	81,510	66,190	199,638	31,704	379,042
Seneca	203,517	31,219	37,896	1,795	274,427
Shelby	143,575	21,212	29,992	7,177	201,956
Stark	193,719	44,150	27,935	6,155	271,959
Summit	119,629	52,959	18,987	7,059	198,634
Trumbull	130,368	141,462	43,541	3,650	319,021
Tuscarawas	122,859	114,241	39,574	10,903	287,577
Union	129,986	62,581	25,394	1,094	219,055
Van Wert	144,025	15,373	45,213	1,958	206,569
Vinton	36,873	80,157	45,857	6,082	168,969
Warren	137,924	37,287	24,472	5,945	205,628
Washington	106,519	137,501	54,578	16,542	315,140
Wayne	212,267	33,953	39,567	6,341	292,128
Williams	138,089	54,013	27,672	1,484	221,258
Wood	193,448	24,924	30,839	2,831	252,042
Wyandot	142,125	42,613	23,063	1,930	209,731
Totals	10,239,866	5,849,010	2,817,599	565,451	19,471,926

COMMERCIAL FERTILIZERS.

Counties.	Commercial Fertilizers.		
	Pounds used during 1899	Cost of fertilizers used during 1899 (dollars.)	Estimated pounds to be used during 1900.
Adams	3,574,714	$36,554	2,165,850
Allen	443,040	4,134	79,900
Ashland	2,697,880	26,686	1,069,690
Ashtabula	4,290,050	520,630	2,814,467
Athens	1,790,700	15,715	458,400
Auglaize	394,450	3,721	51,400
Belmont	1,913,426	19,016	581,400
Brown	4,079,375	19,651	996,120
Butler	1,064,300	11,074	90,500
Carroll	1,678,780	16,857	497,845
Champaign	2,691,482	23,398	429,000
Clark	1,341,070	15,519	263,600
Clermont	1,205,660	11,842	474,211
Clinton	1,514,200	16,956	308,200
Columbiana	3,982,220	39,307	2,010,460
Coshocton	1,891,700	15,720	641,020
Crawford	1,511,020	14,420	431,890
Cuyahoga	4,470,300	41,070	2,189,300
Darke	1,997,157	18,075	173,133
Defiance	67,200	675	26,900
Delaware	1,189,350	12,215	635,650
Erie	1,460,350	12,826	209,217
Fairfield	4,186,150	38,643	630,247
Fayette	1,829,450	13,346	678,475
Franklin	723,500	8,709	129,800
Fulton	125,380	1,197	37,020
Gallia	2,318,660	20,205	1,307,490
Geauga	2,626,425	28,609	2,081,400
Greene	859,250	5,723	288,500
Guernsey	2,039,340	19,428	850,200
Hamilton	....	779	....
Hancock	738 800	11,969	106,500
Hardin	279,300	3,999	182,200
Harrison	897,780	9,372	166,100
Henry	72,240	1,063	17,600
Highland	3,300,780	32,015	786,640
Hocking	2,357,840	21,174	853,800
Holmes	1,702,830	17,984	870,400
Huron	4,068,079	59,964	1,225,730
Jackson	2,380,320	21,694	1,024,000
Jefferson	1,151,650	75,520	486,520
Knox	3,224,630	20,152	794,549
Lake	1,743,790	14,356	770,600
Lawrence	554,190	6,014	211,540
Licking	3,853,490	34,226	957,500
Logan	1,215,956	11,434	45,700
Lorain	2,192,506	25,240	717,950
Lucas	250,510	1,646	43,000
Madison	173,945	1,559	47,800
Mahoning	2,574,465	53,066	1,640,898
Marion	331,100	3,136	6,400
Medina	669,380	54,476	3,244,225
Meigs	2,762,590	26,541	1,299,059
Mercer	178,150	2,139	25,800
Miami	2,298,280	18,092	536,100
Monroe	4,850,551	22,124	1,035,200
Montgomery	3,326,597	34,288	1,299,030
Morgan	2,368,800	23,639	767,500
Morrow	2,745,410	21,916	1,041,650
Muskingum	3,513,910	34,860	1,313,680
Noble	1,259,315	12,059	405,612
Ottawa	5,700	48	200

COMMERCIAL FERTILIZERS—Concluded.

Counties.	Commercial Fertilizers.		
	Pounds used during 1899	Cost of fertilizers used during 1899 (dollars.)	Estimated pounds to be used during 1900.
Paulding	1,700	26	1,200
Perry	3,835,400	35,160	1,853,000
Pickaway	2,244,200	23,615	759,850
Pike	2,773,350	23,465	869,900
Portage	3,636,760	50,329	2,485,345
Preble	5,992,850	54,392	1,996,600
Putnam	2,800	30	400
Richland	3,540,495	23,729	608,900
Ross	3,608,580	26,038	594,130
Sandusky	658,700	7,039	222,000
Scioto	3,033,800	30,472	1,834,500
Seneca	3,606,934	31,392	752,700
Shelby	1,476,300	15,137	....
Stark	3,253,025	86,059	1,958,048
Summit	3,445,990	31,780	1,288,250
Trumbull	3,251,152	37,521	2,166,810
Tuscarawas	1,706,576	17,011	419,900
Union	579,575	5,755	125,000
Van Wert	....	....	....
Vinton	1,997,590	15,472	732,100
Warren	973,600	9,647	307,800
Washington	5,170,510	43,805	1,823,880
Wayne	5,516,148	60,238	3,359,466
Williams	235,000	2,280	25,200
Wood	725,940	4,035	45,400
Wyandot	710,500	6,725	76,800
Totals	178,926,948	$2,299,136	68,801,950

TABLES OF COMPARATIVE STATISTICS AS COMPILED BY THE SECRETARY OF AGRICULTURE.

COMPARATIVE TABLE SHOWING PRODUCTION OF WHEAT IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	218,156	304,053	241,235	97,769	199,005	340,920	273,430	270,802	218,724
Allen	560,722	400,589	328,024	318,955	451,775	540,700	440,895	474,100	652,237
Ashland	602,971	521,223	597,622	274,753	343,502	640,105	688,750	517,065	589,923
Ashtabula	241,819	291,570	200,208	69,913	132,485	224,074	252,818	154,956	229,553
Athens	151,795	181,279	202,247	191,676	130,891	178,271	159,048	160,508	120,636
Auglaize	775,151	509,909	399,480	365,547	566,304	767,327	548,451	654,145	733,753
Belmont	274,604	356,622	406,539	331,471	261,776	383,747	406,877	277,229	258,403
Brown	259,818	353,060	251,883	94,296	290,175	383,181	338,964	377,716	305,053
Butler	108,176	1,065,347	916,826	258,458	543,729	956,238	921,809	840,645	1,112,126
Carroll	207,543	274,745	250,068	138,622	122,356	239,344	276,070	227,240	208,935
Champaign	783,253	648,804	514,096	275,079	437,118	974,493	838,569	777,953	945,630
Clark	806,942	626 155	539,361	319,384	442,127	749,065	715,374	641,603	710,434
Clermont	192,959	269,413	162,288	49,276	216,692	296,308	271,791	279,173	212,861
Clinton	687,147	572,322	498,287	105,842	367,423	704,341	613,159	622,800	637,352
Columbiana	320,530	423,274	431,575	220,331	166,151	398,901	454,183	349,139	338,692
Coshocton	338,998	437,704	550,925	131,234	243,994	496,591	518,748	423,543	421,082
Crawford	650,523	458,157	482,632	196,698	344,773	512,106	519,764	374,047	455,547
Cuyahoga	202,621	219,437	162,382	79,742	141,978	226,981	242,137	168,863	193,789
Darke	1,351,096	1,065,613	774,220	572,758	796,963	1,462,139	1,055,095	1,126,323	1,378,656
Defiance	207,468	377,332	252,654	284,279	452,197	426,500	458,224	364,418	586,023
Delaware	479,210	279,802	208,277	62,604	159,482	353,012	344,522	303,055	353,098
Erie	388,458	354,051	414,918	182,373	237,095	379,368	468,621	345,651	429,713
Fairfield	677,034	736,986	679,559	222,234	406,864	741,640	739,855	782,679	775,257
Fayette	958,175	637,272	646,045	105,151	351,526	614,692	628,196	643,940	603,418
Franklin	716,942	598,842	563,884	70,477	363,176	643,579	727,669	772,327	772,408
Fulton	82,381	512,947	365,356	322,780	436,418	443,658	509,335	413,906	608,932
Gallia	216,132	268,480	242,274	206,417	192,651	261,210	230,067	234,102	175,318
Geauga	173,755	201,198	156,257	59,590	66,521	150,508	163,120	117,593	142,908
Greene	850,817	709,532	616,485	37,382	620,807	959,893	862,990	883,847	845,539
Guernsey	205,903	261,054	277,848	192,155	162,336	246,724	240,726	220,584	157,821
Hamilton	294,745	289,073	260,505	48,290	168,583	259,224	280,770	300,625	286,532

Hancock	946,112	759,325	626,425	401,044	695,428	914,310	711,883	624,546	926,414
Hardin	620,912	398,011	289,929	219,319	342,380	506,589	424,988	431,393	536,778
Harrison	159,877	226,375	234,257	159,966	143,405	236,853	239,924	211,911	154,149
Henry	207,346	676,004	518,881	464,426	583,984	652,101	672,735	407,593	669,613
Highland	413,624	549,559	535,618	141,729	352,977	594,279	567,631	560,235	497,366
Hocking	158,223	218,415	189,996	200,905	108,986	148,365	159,296	156,081	113,749
Holmes	457,884	435,711	449,842	147,498	265,621	325,125	575,048	445,362	559,733
Huron	781,246	506,725	541,346	300,953	423,678	561,280	648,017	418,343	458,566
Jackson	134,424	163,863	141,424	109,462	116,945	165,213	124,300	120,344	84,674
Jefferson	177,028	272,035	293,037	243,564	151,436	259,595	256,503	307,270	213,248
Knox	526,682	543,823	621,728	166,459	301,897	553,667	644,359	521,833	516,113
Lake	100,367	107,577	91,714	56,076	56,733	101,012	112,111	92,377	100,879
Lawrence	101,183	97,307	67,438	51,028	82,561	129,050	102,511	91,688	82,248
Licking	615,650	634,725	416,127	183,523	276,716	715,916	741,844	615,453	563,004
Logan	739,302	414,629	328,759	218,496	253,941	610,978	454,599	514,234	689,726
Lorain	402,773	393,995	409,387	173,616	265,535	404,275	436,815	272,669	403,304
Lucas	46,565	332,367	262,385	196,192	198,939	248,477	297,543	214,198	249,114
Madison	891,327	655,771	420,953	48,078	256,873	673,334	622,718	527,967	566,281
Mahoning	231,788	326,816	408,650	119,012	117,701	303,894	402,860	217,353	206,037
Marion	605,021	350,654	823,423	136,513	251,082	523,426	483,642	873,453	457,477
Medina	311,808	452,860	429,131	119,134	289,969	449,172	561,547	873,797	431,427
Meigs	237,695	264,098	287,824	229,454	205,729	274,612	250,888	254,014	174,102
Mercer	766,255	446,749	367,945	360,080	556,136	764,392	515,740	573,443	706,310
Miami	876,799	861,354	668,198	565,799	496,159	1,082,571	951,112	867,635	964,673
Monroe	239,907	241,937	272,828	219,341	201,800	268,166	272,899	257,409	211,844
Montgomery	859,863	812,677	564,339	373,714	450,381	893,754	820,514	761,201	935,819
Morgan	234,544	206,117	228,180	256,094	209,280	231,053	177,113	182,734	130,931
Morrow	434,262	284,895	241,085	155,373	171,021	272,213	319,824	242,826	241,686
Muskingum	367,125	464,467	429,171	289,245	241,458	421,218	474,127	373,787	254,929
Noble	164,328	171,001	232,364	175,716	193,106	223,755	190,761	193,824	146,068
Ottawa	184,651	326,944	323,890	189,782	304,214	321,063	340,903	149,681	362,019
Paulding	74,689	302,566	129,950	205,530	395,159	280,151	237,331	197,852	285,522
Perry	252,250	329,685	306,495	233,332	193,292	262,864	248,519	267,572	198,820
Pickaway	994,225	800,881	951,527	167,063	628,283	995,617	661,038	954,056	916,796
Pike	203,170	258,229	228,109	138,219	202,996	275,604	202,270	206,335	180,950
Portage	370,435	457,506	370,609	130,141	179,519	372,139	422,489	318,225	338,868
Preble	952,659	922,193	601,159	459,583	568,561	922,364	723,090	621,057	746,919
Putnam	879,735	643,313	561,813	444,928	730,761	862,626	614,237	516,528	774,959
Richland	690,417	615,171	617,176	316,239	423,980	627,919	727,374	531,424	598,408
Ross	634,346	760,329	771,331	328,800	464,813	883,977	640,796	752,274	650,807
Sandusky	1,188,685	697,025	740,777	472,128	677,338	873,048	792,030	589,956	830,766
Scioto	246,556	288,823	263,944	152,346	153,666	247,476	215,339	202,243	138,537
Seneca	1,089,356	891,059	874,190	470,361	766,315	1,065,511	1,055,372	767,815	1,141,921
Shelby	713,427	505,042	351,181	321,904	452,382	786,867	541,761	605,196	727,943
Stark	775,863	993,695	900,724	299,291	447,385	903,250	1,021,223	786,472	860,450
Summit	585,302	614,417	525,724	241,912	247,642	530,332	599,064	437,499	479,843
Trumbull	274,151	298,383	245,415	55,433	122,770	255,749	285,943	171,013	205,615
Tuscarawas	374,922	515,940	500,700	201,480	299,399	503,875	527,635	456,942	453,506
Union	526,909	292,458	298,462	41,869	160,091	898,961	896,265	348,025	422,619
Van Wert	534,494	559,256	365,988	455,590	618,318	703,355	516.542	413,270	579,746
Vinton	101,428	134,096	107,085	88,650	78,035	106,679	112,742	100,673	69,531
Warren	456,352	329,844	411,365	44,267	346,980	585,264	576,531	597,410	616,937

COMPARATIVE TABLE SHOWING PRODUCTION OF WHEAT IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Washington	411,392	394 054	417,713	425,406	399,742	482,794	434,150	425,255	301,686
Wayne	789,228	867,836	945,872	306,584	483,730	1,117,768	1,183,590	772,890	948,999
Williams	304,170	352,437	286,815	221,835	367,543	445,074	486,788	429,240	609,117
Wood	507,902	796,772	724,633	505,318	638,653	805,540	818,235	556,859	802,827
Wyandot	607,221	423,694	418,757	221,762	329,670	533,212	436,494	424,276	472,157
Total product	41,469,703	41,041,671	36,718,686	19,511,788	28,759,647	45,587,534	43,121,599	38,381,598	42,351,767
Total Area	2,957,616	2,637,788	2,273,712	2,574,364	2,483,855	2,429,082	2,526,370	2,879,094	2,613,281

Average area for 9 years, 2,597,240 acres.
Average product for 9 years, 37,438,221 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF BARLEY IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels. (Includes Fall and Spring Barley.)								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	....	....	130	....	36	519	154	400	76
Allen	1,742	2,757	3,854	1,662	1,216	532	1,241	203	1,351
Ashland	3,758	2,798	3,640	3,222	4,274	8,647	3,822	3,116	6,817
Ashtabula	720	962	1,637	1,489	1,538	1,807	1,340	2,637	10,549
Athens	....	....	....	....	6	....	....	....	170
Auglaize	2,919	3,304	6,590	21,324	31,715	36,478	23,972	22,492	25,798
Belmont	542	1,381	1,429	1,547	1,962	1,484	1,047	776	1,289
Brown	26	....	....	40	....	....	....	185	....
Butler	25,665	20,695	62,521	56,595	153,324	119,361	99,333	51,755	43,301
Carroll	141	36	55	76	120	124	50	75	375
Champaign	3,841	1,345	640	430	824	1,756	30	220	1,115
Clark	2,399	144	569	1,247	6,535	8,205	5,617	2,890	6,885
Clermont	394	140	8	....	219	36	100	20	10
Clinton	1,390	585	1,110	338	1,012	2,831	447	1,656	1,893
Columbiana	455	700	503	345	335	367	432	693	1,881
Coshocton	562	279	15	125	14	18	21	26	35
Crawford	2,443	5,179	4,668	5,827	3,689	6,319	2,543	4,432	5,198
Cuyahoga	40	530	194	51	....	497	428	250	1,020
Darke	7,521	14,860	13,473	32,088	31,212	50,109	16,046	16,632	24,320
Defiance	42,213	27,287	21,679	18,594	17,928	15,718	9,507	4,638	12,960
Delaware	1,240	....	200	25	....	....	75	300	....
Erie	7,768	16,019	18,392	13,394	19,116	28,783	22,948	23,621	45,587
Fairfield	1,227	460	895	2,144	1,323	1,372	145	770	746
Fayette	1,969	172	466	....	206	300	300	275	....
Franklin	71	....	1,000	32	24	1,739	350	6	....
Fulton	29,568	12,432	6,962	5,118	9,096	3,193	2,997	2,950	19,105
Gallia	....	10	3	....	....	....	....	....	120
Geauga	567	237	198	63	174	159	....	189	1,067
Greene	772	395	2,254	225	6,158	7,378	4,981	1,911	4,063
Guernsey	230	270	829	1,063	41	337	112	175	244
Hamilton	2,627	4,251	14,597	7,056	32,062	80,933	109,582	8,501	13,271
Hancock	12,156	5,768	4,032	4,933	4,565	2,400	432	433	1,357
Hardin	468	250	336	....	50	122	72	1,040	570
Harrison	1,066	1,204	1,170	460	260	159	83	290	228

COMPARATIVE TABLE SHOWING PRODUCTION OF BARLEY IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels. (Includes Fall and Spring Barley.)								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Henry	91,119	42,163	40,834	20,785	13,096	7,468	3,709	1,104	7,450
Highland	360	....	26	464	1,180	894	223	....	185
Hocking	....	10	....	97	....	308	180	165	69
Holmes	342	638	1,161	786	829	1,689	915	634	2,191
Huron	4,055	9,973	8,828	4,933	5,552	10,597	5,362	4,972	12,153
Jackson	....	5	....	....	4	....	....	....	10
Jefferson	1,137	1,142	1,623	1,817	141	1,184	882	2,101	442
Knox	1,583	530	84	211	1,462	449	151	48	496
Lake	1,148	314	417	690	2,728	2,950	949	2,442	6,415
Lawrence	....	....	....	48	....	....	....	....	....
Licking	116	245	684	....	109	3,490	369	140	430
Logan	1,127	855	2,215	1,811	2,321	8,521	1,777	1,530	2,107
Lorain	2,246	2,303	742	518	1,216	2,810	5,101	2,680	8,590
Lucas	14,985	10,965	8,544	8,461	6,968	6,043	5,665	6,034	16,072
Madison	567	250	305	60	389	1,600	1,387	3,828	4,009
Mahoning	193	540	49	230	93	417	792	246	876
Marion	197	859	92	460	578	1,045	....	448	2,275
Medina	4,100	2,372	1,098	57	200	22	132	294	999
Meigs	12	....	628	1,000	862	1,274	1,295	743	432
Mercer	10,337	6,350	5,463	26,828	41,492	39,343	20,486	17,408	15,053
Miami	2,277	3,346	4,119	12,296	13,661	21,575	12,299	11,803	14,601
Monroe	7	....	....	....	....	10	....	20	40
Montgomery	3,741	2,987	9,460	14,026	30,299	33,480	19,980	23,436	24,490
Morgan	85	65	2	41	61	151	98	28	....
Morrow	35	....	....	84	464	181	262	258	480
Muskingum	83	200	225	1,459	1,467	3,209	1,108	900	515
Noble	4	....	100	50	425	60	....	....	....
Ottawa	30,756	48,883	52,933	61,266	47,118	27,782	20,204	16,049	23,347
Paulding	135,305	74,924	32,166	6,611	2,546	862	569	165	365
Perry	135	25	....	80	87	251	164	123	72
Pickaway	125	....	1,200	....	1,300	627	....	378	22
Pike	50	....	660	....	....	192	172	145	5,150
Portage	35	320	....	156	1,621	609	45	325	1,615
Preble	1,235	1,785	2,046	8,087	12,878	23,155	9,038	8,711	6,846

Putnam	38,733	33,158	29,547	9,386	6,668	5,604	989	314	1,695
Richland	3,831	6,088	5,873	7,412	10,332	18,907	10,933	7,468	11,344
Ross	20	....	400	15	3,961	3,491	211	200	116
Sandusky	2,982	5,246	5,425	4,566	7,244	9,064	3,418	4,456	11,773
Scioto	42	320	1,105	500	1,249	195	....	1,025	1,290
Seneca	3,789	2,285	780	151	3,352	1,061	1,491	802	2,237
Shelby	2,970	4,302	8,001	33,949	60,875	42,373	19,917	19,249	23,207
Stark	728	1,429	806	899	1,897	1,657	1,064	2,978	2,720
Summit	206	1,008	776	450	415	491	105	110	985
Trumbull	36	....	75	16	214	175	300	156	108
Tuscarawas	92	362	1,162	51	56	182	....	37	1,742
Union	577	234	118	....	26	3	....	90	139
Van Wert	76,855	32,271	41,948	10,410	9,143	7,110	3,281	1,946	7,236
Vinton	....	....	250	....	....	....	....	....	....
Warren	8,126	9,830	12,217	9,934	30,365	16,895	1,192	19,232	14,338
Washington	5	28	....	301	....	....	....	....	87
Wayne	1,115	1,615	3,015	689	1,116	934	398	160	1,457
Williams	68,935	43,512	14,547	10,164	6,297	3,483	2,347	1,408	2,839
Wood	78,639	62,237	42,991	21,091	12,622	18,404	14,936	18,449	36,815
Wyandot	955	388	516	....	370	610	....	345	114
Total Product	752,633	539,812	519,305	462,859	676,383	715,570	480,986	339,140	509,337
Total Area	26,684	20,254	21,008	32,563	43,313	32,179	15,581	14,685	20,884

Average area for 9 years, 25,239 acres.
Average product for 9 years, 555,114 bushels

COMPARATIVE TABLE SHOWING PRODUCTION OF RYE IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	808	2,649	6,914	2,410	2,381	1,851	1,772	2,108	2,933
Allen	2,364	2,562	3,635	6,242	7,275	8,415	3,853	9,247	35,881
Ashland	1,353	2,935	13,216½	4,951	3,270	2,865	2,412	1,523	3,391
Ashtabula	4,985	6,671	8,288	6,214	10,454	12,018	7,964	5,648	8,406
Athens	440	....	1,835	2,606	1,167	134	242	767	545
Auglaize	1,731	3,600	5,629	4,709	4,739	7,711	4,741	8,988	22,682
Belmont	854	1,529	9,206	17,825	5,756	3,822	1,756	1,878	1,028
Brown	1,838	4,501	12,668	4,432	8,346	4,994	3,734	5,938	5,454
Butler	472	886	6,298	1,800	2,212	3,347	1,254	770	1,264
Carroll	528	2,277	6,454	3,074	2,084	1,834	1,256	1,344	1,733
Champaign	1,630	2,018	4,463	1,815	2,881	5,771	4,111	2,302	9,391
Clark	5,239	2,174	9,406	11,732	13,623	16,788	16,145	6,752	15,964
Clermont	6,589	9,462	10,649	4,011	13,968	10,816	7,190	10,814	13,115
Clinton	1,771	3,852	8,403	2,269	1,847	2,193	1,174	1,901	3,979
Columbiana	1,249	2,502	7,634	3,648	3,372	3,778	2,699	2,700	4,655
Coshocton	1,710	5,562	26,262	11,619	8,606	4,935	2,053	1,467	3,246
Crawford	473	1,519	3,784	1,235	5,579	5,697	4,849	1,933	3,569
Cuyahoga	5,658	9,265	15,982	9,038	12,520	22,729	15,606	10,951	8,459
Darke	4,470	8,735	16,759	15,950	10,198	16,612	8,092	11,164	31,252
Defiance	1,546	2,221	3,226	6,183	11,584	6,986	3,875	4,732	16,287
Delaware	1,067	2,343	3,273	1,880	2,295	2,986	1,825	817	5,427
Erie	2,260	3,883	13,591	12,477	12,656	10,682	6,447	3,706	5,798
Fairfield	1,789	3,853	15,157	7,189	4,061	8,203	1,618	3,788	7,894
Fayette	1,391	1,342	11,725	5,466	7,154	5,255	2,246	3,351	6,291
Franklin	2,783	3,581	21,017	4,271	3,658	3,169	1,289	648	3,851
Fulton	2,694	6,498	10,546	16,193	15,973	10,702	12,677	5,541	19,191
Gallia	238	1,024	2,121	1,403	1,446	491	367	751	1,142
Geauga	278	1,829	5,335	2,415	1,437	1,830	1,089	775	679
Greene	1,790	1,289	8,228	4,091	7,242	9,254	4,396	6,310	13,074
Guernsey	639	1,551	6,524	4,075	1,801	2,114	1,185	2,519	2,493
Hamilton	7,743	12,000	17,581	3,460	12,753	13,162	12,974	10,525	14,316
Hancock	3,044	3,587	6,529	6,173	17,601	17,067	15,406	14,030	47,166
Hardin	1,853	3,642	3,527	2,825	3,087	8,477	11,414	10,107	22,617
Harrison	291	559	1,414	1,501	1,403	892	133	248	356
Henry	23,478	43,195	58,383	67,203	74,818	111,350	69,865	42,578	98,934
Highland	1,108	3,702	19,533	4,778	5,362	3,879	3,432	3,478	7,375

Hocking	302	1,840	2,157	1,740	1,097	1,314	915	1,006	1,009
Holmes	1,130	7,042	17,048	6,322	7,495	7,500	4,170	2,119	4,336
Huron	1,656	2,851	8,907	3,697	6,816	5,587	4,654	2,391	9,314
Jackson	192	146	802	1,036	884	100	40	92	86
Jefferson	199	410	2,731	4,514	1,521	741	692	602	844
Knox	874	5,082	20,500	7,931	5,467	3,019	2,260	1,701	4,300
Lake	6,204	5,073	10,830	12,884	12,658	17,833	8,909	7,400	7,550
Lawrence	70	264	454	615	934	782	603	325	243
Licking	4,159	12,721	37,155	22,547	9,617	5,394	2,144	3,189	7,328
Logan	2,109	4,267	7,037	5,015	5,287	8,614	4,357	4,867	14,436
Lorain	391	1,245	7,570	5,179	4,329	4,520	2,561	921	628
Lucas	5,122	11,029	22,263	24,206	37,140	28,777	24,613	17,630	33,165
Madison	1,206	355	7,725	3,008	4,765	7,666	3,529	4,658	10,865
Mahoning	1,134	2,959	12,813	2,646	1,683	4,232	5,415	2,651	2,855
Marion	676	1,770	2,951	1,288	3,092	4,267	3,636	2,122	3,883
Medina	3,415	5,084	21,939	6,383	4,276	4,133	2,120	474	814
Meigs	449	1,003	2,420	1,876	778	357	450	563	115
Mercer	4,038	6,050	9,263	16,229	12,035	20,885	8,587	16,089	69,803
Miami	1,142	1,995	7,623	9,198	5,046	4,524	2,776	3,100	10,439
Monroe	2,020	3,284	11,289	13,562	4,073	2,696	1,937	2,707	2,547
Montgomery	404	1,785	5,470	5,062	3,504	4,700	4,139	7,314	9,720
Morgan	199	349	2,163	5,232	2,929	2,016	780	1,007	1,375
Morrow	1,866	3,287	9,990	4,998	7,819	6,551	9,622	7,179	11,522
Muskingum	1,595	3,436	12,737	15,952	6,280	4,816	4,017	6,721	5,543
Noble	310	342	3,109	4,830	2,171	871	818	563	540
Ottawa	1,743	4,347	10,449	9,734	22,332	14,014	11,647	6,533	12,810
Paulding	4,208	9,060	6,633	8,802	12,905	8,897	6,943	9,987	28,907
Perry	505	907	4,482	5,701	2,220	1,993	1,933	2,734	2,325
Pickaway	191	1,178	14,263	3,216	4,163	2,106	780	1,124	3,144
Pike	337	1,410	2,246	968	511	522	67	19	80
Portage	1,147	4,020	14,599	5,328	3,997	3,708	1,927	675	753
Preble	1,074	1,044	5,793	5,216	3,112	795	4,900	2,744	7,526
Putnam	4,722	5,371	8,633	11,088	24,673	22,751	24,415	21,602	65,979
Richland	2,783	6,138	17,553	7,031	10,231	12,109	9,026	4,599	6,871
Ross	843	3,286	11,730	6,695	4,341	4,779	1,170	679	1,721
Sandusky	2,145	2,762	10,074	8,805	12,086	13,098	10,527	3,672	12,046
Scioto	139	716	792	652	941	1,371	36	621	34
Seneca	811	1,700	3,928	1,061	4,796	3,430	5,072	2,155	7,658
Shelby	3,925	4,205	5,736	5,727	10,254	10,727	3,530	3,662	10,728
Stark	822	3,337	12,751	3,944	4,144	4,671	1,997	1,021	1,261
Summit	1,508	3,406	7,346	4,571	3,178	4,958	1,923	499	437
Trumbull	1,290	3,670	10,370	3,018	5,255	4,532	1,756	1,016	934
Tuscarawas	1,027	3,218	11,958	5,005	5,130	3,967	1,975	1,817	4,361
Union	1,599	1,742	4,853	1,470	1,261	3,768	3,709	4,120	13,764
Van Wert	3,982	6,851	7,663	20,510	23,152	38,055	24,522	42,211	135,708
Vinton	164	446	820	1,319	676	149	137	90	102
Warren	2,373	2,070	11,877	1,665	4,295	3,423	325	2,681	4,389
Washington	494	1,881	5,406	13,763	5,252	3,126	1,551	2,091	1,431
Wayne	688	1,822	9,793	1,785	3,688	5,119	1,400	343	1,594

COMPARATIVE TABLE SHOWING PRODUCTION OF RYE IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	3,298	3,444	7,219	9,376	14,838	7,926	4,339	3,435	8,645
Wood	3,524	5,801	11,070	15,124	24,651	25,389	35,184	24,176	41,244
Wyandot	1,352	2,609	4,942	2,545	3,970	5,207	3,329	2,900	12,130
Total product	185,710	339,757	855,120	617,544	671,807	710,303	508,905	446,696	1,049,740
Total area	15,359	28,737	65,684	99,639	72,429	48,223	43,244	55,907	67,062

Average area for 9 years, 55,143 acres.
Average product for 9 years, 598,398 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF OATS IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	17,929	21,438	43,329	77,689	38,975	38,209	43,365	25,051	15,832
Allen	251,511	281,999	349,308	401,856	311,852	382,106	273,388	294,659	322,305
Ashland	659,558	587,134	609,853	571,221	544,881	598,441	462,819	481,381	550,468
Ashtabula	794,959	653,504	618,906	870,931	968,118	658,968	432,824	420,912	725,428
Athens	14,862	26,205	32,725	58,611	31,493	42,979	31,567	19,717	13,664
Auglaize	350,996	367,136	436,821	509,627	413,973	404,383	305,686	332,991	317,358
Belmont	17,338	133,704	183,874	228,195	144,951	228,454	246,583	192,985	196,175
Brown	107,276	69,462	107,478	117,588	118,490	130,405	114,575	85,210	64,915
Butler	110,330	119,349	234,489	584,500	399,513	293,559	243,972	193,296	191,794
Carroll	441,821	364,044	375,584	403,262	357,465	370,675	344,890	417,431	409,869
Champaign	165,204	262,664	278,744	389,235	303,857	258,400	162,719	146,161	238,534
Clark	135,621	159,362	190,345	224,295	212,029	198,085	154,270	126,973	145,715
Clermont	128,181	119,974	117,593	157,480	190,139	183,642	146,753	125,192	109,825
Clinton	49,114	53,357	99,373	183,517	100,621	128,794	88,852	73,638	79,638
Columbiana	693,071	599,204	603,300	651,654	639,332	599,833	521,166	538,715	649,130
Coshocton	251,767	214,135	192,631	285,635	231,328	270,444	294,642	243,475	266,338
Crawford	819,421	809,864	703,046	769,408	1,002,133	752,136	626,156	633,115	540,802
Cuyahoga	642,896	573,862	459,859	560,811	633,754	566,499	361,944	344,343	438,788
Darke	470,379	567,625	628,447	690,847	607,100	608,590	513,673	477,628	550,255
Defiance	957,135	630,863	468,003	417,897	543,670	558,774	378,601	274,653	354,480
Delaware	344,521	356,958	320,801	522,712	377,566	283,946	219,903	221,317	241,698
Erie	473,071	464,848	463,806	418,318	451,054	427,375	391,240	288,254	349,309
Fairfield	85,406	77,676	78,083	227,403	104,263	124,496	91,768	80,010	87,417
Fayette	17,685	30,060	46,186	156,590	45,668	52,841	36,946	32,672	29,459
Franklin	226,929	265,306	306,703	462,816	217,992	207,111	155,916	151,719	131,999
Fulton	1,131,937	770,624	563,658	632,212	804,581	627,960	563,084	397,125	624,583
Gallia	13,971	23,854	51,727	41,292	23,279	40,669	47,151	28,653	21,052
Geauga	528,497	451,831	423,622	526,633	446,775	439,415	283,941	223,607	370,003
Greene	76,022	107,115	139,219	282,940	193,468	173,284	130,808	100,017	100,379
Guernsey	143,307	132,193	137,928	174,673	116,344	182,915	192,955	180,529	181,625
Hamilton	46,943	45,988	79,636	194,096	147,535	105,828	94,023	77,060	55,582
Hancock	376,222	370,191	352,392	445,754	493,191	472,052	307,126	329,261	345,803
Hardin	271,438	309,889	329,230	492,936	417,137	370,528	262,035	338,669	274,546
Harrison	189,021	165,262	170,958	195,070	135,440	194,500	172,709	178,715	173,983
Henry	948,238	416,538	352,776	403,213	417,420	356,011	279,991	150,376	232,612

COMPARATIVE TABLE SHOWING PRODUCTION OF OATS IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Highland	21,211	14,254	36,029	86,294	43,017	58,899	50,353	30,395	29,032
Hocking	17,533	18,303	24,507	58,315	23,915	35,029	31,171	20,921	17,849
Holmes	571,119	416,464	464,954	510,123	507,230	515,572	438,114	441,271	601,449
Huron	947,383	937,284	818,368	875,667	989,998	992,621	683,970	630,327	780,033
Jackson	4,952	8,053	20,342	40,613	20,717	33,196	22,731	19,644	14,860
Jefferson	356,377	279,982	300,346	307,222	223,884	293,466	311,718	284,758	288,317
Knox	331,068	309,216	331,494	379,608	337,956	351,141	320,495	341,670	372,531
Lake	253,776	214,113	282,175	239,411	294,598	267,447	232,121	165,651	208,511
Lawrence	27,183	34,878	50,858	43,048	38,070	42,880	53,968	38,194	18,935
Licking	255,039	312,913	348,096	673,217	303,111	294,847	231,528	289,005	281,005
Logan	176,908	231,[illegible]57	288,160	401,431	188,975	331,508	170,032	204,455	198,499
Lorain	806,837	807,259	675,658	903,089	813,945	721,001	469,554	426,796	478,748
Lucas	641,083	466,114	405,204	393,298	447,597	393,938	293,292	211,677	275,509
Madison	191,784	148,780	202,909	214,235	166,287	127,429	94,091	81,493	107,070
Mahoning	589,750	507,861	542,087	292,377	565,506	488,695	460,094	344,680	510,911
Marion	496,708	588,409	404,892	636,250	528,323	511,523	361,590	415,313	405,846
Medina	833,985	804,636	777,848	760,348	715,886	742,772	441,735	525,046	723,861
Meigs	20,364	46,732	54,595	69,601	30,043	52,232	47,656	33,512	25,968
Mercer	580,336	629,134	605,476	703,071	664,059	651,413	480,016	497,915	535,724
Miami	369,129	441,606	522,361	553,379	468,301	415,013	408,432	386,272	438,245
Monroe	111,545	102,733	122,154	141,484	84,837	145,595	135,190	119,043	112,078
Montgomery	247,374	313,473	345,303	463,801	409,472	357,536	320,096	256,308	268,675
Morgan	37,230	42,942	44,898	77,174	75,885	79,523	74,088	39,093	26,892
Morrow	577,876	541,713	440,993	540,871	484,332	497,614	362,417	381,453	406,232
Muskingum	112,326	95,445	117,933	202,956	133,479	191,596	183,778	164,990	132,114
Noble	49,463	59,972	74,511	101,641	79,965	102,586	80,838	66,464	61,509
Ottawa	123,448	278,361	287,828	310,856	369,847	285,422	172,195	138,039	131,408
Paulding	882,971	421,621	290,712	263,481	330,957	233,769	170,769	100,358	138,070
Perry	20,190	24,595	34,665	68,025	45,220	52,193	33,162	40,687	29,241
Pickaway	15,111	18,707	38,522	155,121	41,041	42,739	32,074	17,538	24,010
Pike	6,503	8,641	32,709	47,597	21,904	38,182	24,210	21,254	19,257
Portage	759,979	683,584	702,875	810,075	628,989	616,094	431,411	422,926	673,013
Preble	181,531	228,781	318,380	369,609	407,764	370,625	384,498	276,081	265,862
Putnam	241,478	203,548	218,584	218,941	282,320	277,034	132,630	101,288	135,680
Richland	833,789	797,594	787,202	759,198	878,506	855,471	665,400	684,374	711,435

Ross	7,708	15,571	24,821	121,517	41,976	74,183	48,081	32,581	22,985
Sandusky	589,622	508,947	568,987	580,198	694,488	585,184	397,177	340,089	479,185
Scioto	30,801	38,621	65,546	98,342	59,984	85,268	66,625	53,837	29,157
Seneca	624,614	713,074	592,493	778,999	714,182	730,228	550,909	471,451	636,648
Shelby	500,374	638,123	565,007	621,071	589,958	586,274	407,075	444,379	451,596
Stark	1,121,658	975,546	1,100,271	1,137,122	1,263,340	966,968	779,889	798,071	1,079,115
Summit	716,708	716,302	701,253	759,733	722,404	636,985	450,800	465,986	682,082
Trumbull	748,819	709,482	754,977	940,600	930,538	573,461	423,809	304,225	571,885
Tuscarawas	568,044	463,146	462,495	554,621	541,737	542,650	[illegible]52,546	457,170	536,353
Union	229,269	295,708	331,050	503,789	254,670	272,063	161,122	210,055	193,346
Van Wert	532,503	393,048	429,662	334,965	517,944	718,065	298,318	234,657	345,182
Vinton	9,477	16,559	22,548	40,745	23,460	32,483	25,558	14,400	13,392
Warren	20,397	135,028	190,654	399,821	203,010	208,620	196,923	160,380	177,594
Washington	115,701	146,224	154,905	208,637	110,668	180,966	156,040	124,844	99,810
Wayne	1,128,861	926,081	1,029,760	1,030,683	1,015,500	950,125	696,523	683,414	912,220
Williams	933,170	820,227	664,182	578,117	727,717	715,623	640,301	436,223	584,845
Wood	1,404,129	1,101,267	1,039,803	825,611	1,324,520	1,054,242	727,387	514,925	635,603
Wyandot	369,141	379,102	300,578	510,549	446,320	387,570	275,341	350,605	215,415
Total product	33,296,912	30,694,432	30,563,033	36,027,464	34,013,739	31,991,896	24,537,989	22,541,473	26,515,935
Total area	969,565	976,902	1,052,605	1,262,906	1,095,142	1,051,773	856,235	827,823	879,463

Average area for 9 years, 996,935 acres.
Average product for 9 years, 30,020,319 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF OATS IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Highland	21,211	14,254	36,029	86,294	43,017	58,899	50,353	30,395	29,032
Hocking	17,533	18,303	24,507	58,315	23,915	35,029	31,171	20,921	17,849
Holmes	571,119	416,464	464,954	510,123	507,230	515,572	438,114	441,271	601,449
Huron	947,383	937,284	818,368	875,667	989,998	992,621	683,970	630,327	780,083
Jackson	4,952	8,053	20,342	40,613	20,717	33,196	22,731	19,644	14,860
Jefferson	356,377	279,982	300,346	307,222	223,884	293,466	311,718	284,758	288,317
Knox	331,068	309,216	331,494	379,608	337,956	351,141	320,495	341,670	372,531
Lake	253,776	214,113	282,175	239,411	294,598	267,447	232,121	165,651	208,511
Lawrence	27,183	34,878	50,858	43,048	38,070	42,880	53,966	38,194	18,935
Licking	255,039	312,913	348,096	673,217	303,111	294,847	231,528	289,005	281,005
Logan	176,908	231,[illegible]67	288,160	401,431	188,975	331,508	170,032	204,455	198,499
Lorain	806,837	807,259	675,658	903,089	813,945	721,001	469,554	426,796	478,748
Lucas	641,083	466,114	405,204	393,298	447,597	393,938	293,292	211,677	275,509
Madison	191,784	148,780	202,909	214,235	166,287	127,429	94,091	81,493	107,070
Mahoning	589,750	507,861	542,087	292,377	565,506	488,695	460,094	344,680	510,911
Marion	496,708	588,409	404,892	636,250	528,323	511,523	361,590	415,313	405,846
Medina	833,985	804,636	777,848	760,348	715,886	742,772	441,735	525,046	723,861
Meigs	20,364	46,732	54,595	69,601	30,043	52,232	47,656	33,512	25,968
Mercer	580,336	629,134	605,476	703,071	664,059	651,413	480,016	497,915	535,724
Miami	369,129	441,606	522,361	553,379	468,301	415,013	408,432	386,272	438,245
Monroe	111,545	102,733	122,154	141,484	84,837	145,595	135,190	119,043	112,078
Montgomery	247,374	313,473	345,303	463,801	409,472	357,536	320,096	256,308	268,675
Morgan	37,230	42,942	44,898	77,174	75,885	79,523	74,088	39,093	26,892
Morrow	577,876	541,713	440,993	540,871	484,332	497,614	362,417	381,453	406,232
Muskingum	112,326	95,445	117,933	202,956	133,479	191,596	183,778	164,990	132,114
Noble	49,463	59,972	74,511	101,641	79,965	102,586	80,838	66,464	61,509
Ottawa	123,448	278,361	287,828	310,856	369,847	285,422	172,195	138,039	131,408
Paulding	882,971	421,621	290,712	263,481	330,957	233,769	170,769	100,358	138,070
Perry	20,190	24,595	34,665	68,025	45,220	52,193	33,162	40,667	29,241
Pickaway	15,111	18,707	38,522	155,121	41,041	42,739	32,074	17,538	24,010
Pike	6,503	8,641	32,709	47,597	21,904	38,182	24,210	21,254	19,257
Portage	759,979	683,584	702,875	810,075	628,989	616,094	431,411	422,926	673,013
Preble	181,531	228,781	318,380	369,609	407,764	370,625	384,498	276,081	265,862
Putnam	241,478	203,548	218,534	218,941	282,320	277,034	132,630	101,288	135,680
Richland	833,789	797,594	787,202	759,198	878,506	855,471	665,400	684,374	711,435

Ross	7,708	15,571	24,821	121,517	41,976	74,183	48,081	32,581	22,985
Sandusky	589,622	568,947	568,987	580,198	694,488	585,184	397,177	340,089	479,185
Scioto	30,801	38,621	65,546	98,342	59,984	85,268	66,625	53,837	29,157
Seneca	624,614	713,074	592,493	778,999	714,182	730,228	550,909	471,451	636,648
Shelby	500,374	638,123	565,007	621,071	589,958	586,274	407,075	444,379	451,596
Stark	1,121,658	975,546	1,100,271	1,137,122	1,263,340	966,968	779,889	798,071	1,079,115
Summit	716,708	716,302	701,253	759,733	722,404	636,985	450,800	466,986	682,082
Trumbull	748,819	709,482	754,977	940,600	930,538	573,461	423,809	304,225	571,885
Tuscarawas	568,044	463,146	462,495	554,621	541,737	542,650	[illegible]52,546	457,170	536,353
Union	229,269	295,708	331,050	503,789	254,670	272,063	161,122	210,055	193,346
Van Wert	532,503	393,048	429,662	334,965	517,944	718,065	298,318	234,657	345,182
Vinton	9,477	16,559	22,548	40,745	23,460	32,483	25,558	14,400	13,392
Warren	20,397	135,028	190,654	399,821	203,010	208,620	196,923	160,380	177,594
Washington	115,701	146,224	154,905	208,637	110,668	180,966	156,040	124,844	99,810
Wayne	1,128,861	926,081	1,029,760	1,030,683	1,015,500	950,125	696,523	683,414	912,220
Williams	933,170	820,227	664,182	578,117	727,717	715,623	640,301	436,223	584,845
Wood	1,404,129	1,101,267	1,039,803	825,611	1,324,520	1,054,242	727,387	514,925	635,603
Wyandot	369,141	379,102	300,578	510,549	446,320	387,570	275,341	350,605	215,415
Total product	33,296,912	30,694,432	30,563,033	36,027,464	34,013,739	31,991,896	24,537,989	22,541,473	26,515,935
Total area	969,565	976,902	1,052,605	1,262,906	1,095,142	1,051,773	856,235	827,823	879,463

Average area for 9 years, 996,935 acres.
Average product for 9 years, 30,020,319 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF CORN IN OHIO FOR NINE YEARS.

Counties.	Bushels (Shelled.)								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	902,171	1,013,713	937,766	1,156,639	646,711	850,644	641,597	748,599	855,708
Allen	1,257,240	1,209,899	1,357,388	1,538,141	1,314,789	1,246,444	970,477	924,822	1,255,294
Ashland	836,308	968,280	831,350	968,200	911,977	463,112	465,285	615,807	714,046
Ashtabula	454,599	690,001	448,283	558,988	618,204	711,620	130,104	255,769	459,455
Athens	449,755	515,325	477,430	515,263	498,507	421,385	420,829	450,869	494,990
Auglaize	1,574,265	1,554,545	1,403,978	2,012,775	1,347,947	1,259,745	1,049,422	1,132,936	1,132,127
Belmont	895,204	1,064,474	844,974	1,123,655	824,700	521,784	849,848	926,548	918,058
Brown	1,214,197	1,249,513	1,616,065	1,413,209	1,020,024	955,391	890,880	994,605	1,128,758
Butler	3,101,482	2,069,862	1,942,276	2,855,940	1,572,733	1,366,373	400,763	545,177	1,824,244
Carroll	391,093	580,806	439,523	612,753	496,521	271,203	393,892	537,927	504,397
Champaign	2,225,267	2,448,256	1,858,336	2,748,826	1,720,523	1,968,895	1,741,750	2,012,820	2,012,054
Clark	203,544	2,118,612	2,026,852	2,419,539	1,621,740	1,703,073	1,691,658	1,729,942	1,581,541
Clermont	1,111,813	1,042,754	1,000,661	1,094,808	1,189,538	636,340	615,313	818,251	817,396
Clinton	2,555,251	2,453,512	2,280,104	2,902,243	2,270,012	2,092,341	1,494,252	1,888,142	1,806,124
Columbiana	601,318	800,515	536,015	797,793	805,417	427,170	553,034	543,245	590,081
Coshocton	773,188	1,119,201	790,637	1,026,726	1,047,137	614,108	754,924	827,100	944,749
Crawford	1,345,669	151,134	1,106,100	1,375,642	1,514,750	1,083,403	887,158	951,041	961,586
Cuyahoga	373,953	468,740	329,851	322,106	402,182	277,535	243,684	212,815	294,156
Darke	3,208,023	3,424,966	3,102,697	4,238,209	2,609,091	2,312,433	1,951,414	2,065,136	2,473,589
Defiance	1,619,358	1,052,589	916,558	1,235,429	817,674	801,304	710,529	322,276	940,444
Delaware	1,540,143	1,522,213	1,449,185	1,757,653	1,056,614	1,243,620	957,356	1,033,741	1,202,275
Erie	649,002	691,450	572,969	708,363	566,006	684,943	452,103	396,409	450,166
Fairfield	2,199,100	2,012,881	1,688,568	2,241,576	1,679,819	1,885,645	1,822,385	1,980,382	1,723,339
Fayette	2,515,635	2,296,045	2,570,879	2,937,730	1,819,871	1,954,960	1,929,405	2,618,643	2,143,115
Franklin	230,529	2,332,185	2,523,647	3,254,029	2,280,794	2,261,157	2,045,502	2,483,590	2,183,216
Fulton	1,254,455	1,308,561	920,257	1,230,188	946,941	770,799	833,472	376,459	962,272
Gallia	640,882	675,596	616,806	681,697	519,875	470,702	501,052	514,195	578,475
Geauga	328,128	417,657	330,419	357,722	319,214	252,811	194,690	178,311	243,217
Greene	2,754,575	2,583,818	2,330,046	3,535,217	2,173,452	2,155,070	797,278	2,035,903	2,029,663
Guernsey	606 624	828,388	600,491	780,770	685,910	521,725	567,740	586,087	631,910
Hamilton	551,100	642,984	725,646	868,988	553,061	348,343	525,954	578,097	689,164
Hancock	2,201,211	1,891,306	1,736,131	2,288,577	2,270,751	1,712,219	1,461,092	1,217,807	1,697,182
Hardin	1,565,667	1,440,005	1,368,508	2,055,035	1,274,403	1,237,701	828,292	1,037,153	1,038,381

Harrison	419,352	646,208	467,615	826,528	566,971	327,067	422,243	592,066	563,236
Henry	2,994,496	2,217,175	2,038,971	2,398,694	1,964,750	1,809,368	1,423,826	660,206	1,376,851
Highland	1,763,498	1,661,306	1,691,519	2,132,133	1,427,075	1,325,736	127,895	1,248,069	1,522,613
Hocking	480,428	519,824	445,936	520,207	417,142	421,497	362,892	378,994	375,072
Holmes	663,754	860,545	705,329	852,011	695,059	437,789	482,660	686,827	782,664
Huron	1,266,748	1,223,828	894,766	1,080,932	1,061,236	706,037	644,419	645,104	627,870
Jackson	287,640	432,326	347,166	432,923	278,399	349,220	211,874	293,387	268,227
Jefferson	469,059	638,250	475,869	649,499	535,160	258,869	414,223	563,266	564,536
Knox	1,055,860	1,399,337	1,034,932	1,420,425	1,108,078	718,143	823,830	1,035,182	1,109,050
Lake	238,540	246,321	250,227	227,714	285,149	178,749	144,311	156,415	147,158
Lawrence	367,082	466,115	444,250	426,023	370,443	355,724	359,335	405,445	408,031
Licking	1,981,628	2,167,822	1,619,161	601,094	1,651,757	1,536,529	1,619,845	1,581,223	1,713,804
Logan	1,753,369	1,713,214	1,606,952	2,030,260	1,237,751	1,476,866	936,449	1,310,559	1,290,190
Lorain	662,442	794,862	568,355	686,801	651,603	494,658	382,416	374,866	386,789
Lucas	916,422	950,242	696,837	880,480	699,385	582,761	543,112	255,074	627,179
Madison	2,824,597	2,871,614	2,922,451	3,916,307	2,812,326	3,368,050	2,745,469	2,494,673	2,570,687
Mahoning	547,222	644,468	426,137	2,434,464	476,950	388,234	398,668	358,981	411,411
Marion	1,794,112	1,825,765	1,451,218	2,080,057	1,834,453	1,666,897	1,222,733	1,422,538	1,345,615
Medina	692,320	830,655	677,588	817,701	687,115	471,318	451,808	522,823	649,209
Meigs	561,612	559,523	425,855	509,077	441,688	330,353	385,241	426,818	433,336
Mercer	1,686,532	1,566,649	1,416,796	1,989,803	1,533,879	1,472,242	964,663	1,054,498	1,501,346
Miami	2,063,832	2,112,438	1,907,044	2,705,212	1,440,979	1,502,462	1,594,468	1,881,041	1,748,568
Monroe	598,603	634,108	537,453	596,458	517,222	282,026	368,498	532,315	570,367
Montgomery	1,630,543	1,918,425	1,658,414	2,642,318	1,442,263	1,547,585	1,151,464	1,161,650	1,888;576
Morgan	627,117	589,811	578,362	662,452	592,137	400,671	574,347	512,405	571,745
Morrow	1,109,115	1,239,920	856,196	1,007,102	1,004,100	784,083	650,708	691,654	765,971
Muskingum	1,049,738	1,175,889	945,800	1,268,634	1,091,455	296,294	953,001	1,088,306	985,246
Noble	628,768	572,268	613,915	688,186	620,916	394,762	514,809	557,943	667,750
Ottawa	815,567	683,287	813,510	921,456	853,920	477,662	375,298	403,414	477,401
Paulding	2,477,194	1,673,118	1,110,984	1,581,195	1,473,627	874,654	861,361	546,449	966,905
Perry	662,910	668,205	623,430	1,246,476	587,840	484,232	480,328	589,789	516,447
Pickaway	2,949,668	2,300,028	2,615,699	4,020,015	2,641,930	2,793,610	2,817,572	2,847,562	2,166,418
Pike	623,679	830,235	737,540	1,020,174	590,062	932,635	476,750	690,179	639,080
Portage	445,843	646,067	448,948	637,373	563,746	417,983	417,922	360,334	471,898
Preble	2,116,052	2,020,943	1,884,200	2,616,078	1,673,061	1,712,613	1,212,531	1,587,571	1,179,052
Putnam	2,601,494	2,067,899	2,433,846	2,398,700	2,482,136	2,003,212	1,736,568	1,130,431	1,707,228
Richland	119,201	1,197,431	977,172	1,089,980	1,092,156	651,701	594,399	807,572	838,381
Ross	2,498,190	2,668,608	2,218,451	3,160,790	2,034,469	2,497,783	1,866,638	1,779,386	2,307,884
Sandusky	1,451,885	1,665,140	1,497,865	1,496,354	1,562,198	1,273,177	984,078	826,975	1,337,646
Scioto	774,136	826,133	715,199	644,455	716,036	838,800	529,879	710,322	621,052
Seneca	1,731,338	1,856,587	1,420,813	1,891,697	1,806,580	1,472,872	1,136,157	975,924	1,400,739
Shelby	1,636,796	1,714,186	1,332,986	2,206,410	1,288,781	1,542,529	915,715	1,255,037	1,475,850
Stark	1,076,804	1,378,993	1,125,604	1,434,023	1,425,923	724,204	766,205	948,792	1,075,221
Summit	580,650	809,622	614,926	791,030	728,837	453,925	466,096	463,667	605,824
Trumbull	462,275	593,526	614,520	640,269	603,299	432,568	358,074	271,838	365,887
Tuscarawas	627,542	898,526	684,775	864,204	891,503	506,476	583,792	693,476	727,276
Union	1,765,009	1,735,316	1,861,126	2,260,187	1,438,152	1,437,624	1,070,589	1,323,909	1,307,792
Van Wert	2,193,660	1,609,615	1,503,679	2,046,000	2,005,548	1,850,425	1,319,471	1,025,489	1,883,800
Vinton	276,072	343,121	300,468	364,855	315,840	309,097	230,309	283,769	258,910
Warren	1,934,531	1,859,266	1,745,400	3,749,484	1,544,712	1,085,442	1,382,692	1,492,633	1,642,697
Washington	722,987	799,270	759,702	701,817	661,374	412,611	588,376	692,008	775,404
Wayne	1,428,753	1,581,285	1,346,455	1,533,031	1,458,537	885,484	716,322	926,272	1,129,765

COMPARATIVE TABLE SHOWING PRODUCTION OF CORN IN OHIO FOR NINE YEARS—Concluded.

Counties.	Bushels (Shelled.)								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	1,118,563	1,043,677	776,751	1,045,812	745,642	745,306	663,513	405,836	879,295
Wood	3,178,841	2,481,132	2,503,655	2,861,704	2,871,727	2,313,169	2,133,908	1,515,235	2,075,381
Wyandot	1,574,785	1,444,258	1,113,728	1,564,721	1,538,340	1,211,825	866,567	900,253	829,142
Total product	111,159,200	114,214,148	203,004,970	134,796,274	102,447,445	88,805,607	77,229,446	81,892,100	93,832,652
Total area	3,025,666	3,057,712	2,999,826	3,230,331	3,037,014	2,910,206	2,655,050	2,458,380	2,634,436

Average area for 9 years, 2.889,847 acres.
Average product for 9 years, 111,931,316 bushels.

For Butler County, 1899, instead of 3,101,482, read 2,101,482.

For Clark County, 1899, instead of 203,544, read 2,035,440.

For Franklin County, 1899, instead of 230,529, read 2,305,290.

For Richland County, 1899, instead of 119,201, read 1,192.010.

For total, 1899, instead of 111,159,200, read 115,138,669.

For average product for nine years, instead of 111,931,316, read 112,372,469.

COMPARATIVE TABLE SHOWING PRODUCTION OF MEADOWS IN OHIO FOR NINE YEARS.

Counties.	Tons of Hay.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	10,767	12,169	9,486	9,155	9,343	11,889	11,277	13,694	15,003
Allen	20,394	26,105	21,497	22,519	11,830	27,839	23,629	26,736	27,980
Ashland	26,026	32,279	21,597	27,655	17,352	36,651	25,032	37,454	44,226
Ashtabula	57,306	56,763	50,451	47,646	39,327	63,848	72,294	67,175	77,889
Athens	17,576	22,122	17,941	13,149	7,010	21,760	23,818	28,758	33,287
Auglaize	14,891	16,979	16,442	16,117	9,803	19,146	17,497	17,455	18,348
Belmont	37,050	38,728	28,876	27,803	14,597	29,822	32,370	40,800	52,859
Brown	14,475	13,710	13,450	12,411	12,652	16,937	14,772	17,249	20,401
Butler	14,131	15,952	14,096	11,287	21,107	17,785	17,334	20,859	22,120
Carroll	28,668	29,316	22,602	23,305	12,547	31,684	30,077	39,842	41,259
Champaign	8,029	14,081	15,566	15,304	7,452	16,963	14,430	16,601	21,074
Clark	11,951	17,205	18,210	16,840	12,345	21,613	22,367	23,265	24,463
Clermont	15,535	17,214	14,145	11,332	18,107	25,330	3,588	29,138	23,701
Clinton	13,342	16,359	11,792	12,407	10,590	28,236	20,441	22,291	23,796
Columbiana	41,881	46,204	38,475	39,786	15,632	44,913	44,556	53,896	60,673
Coshocton	27,247	37,051	26,182	26,557	13,152	24,860	31,004	42,430	44,332
Crawford	31,651	34,516	31,545	30,891	20,732	35,506	28,142	36,470	35,382
Cuyahoga	29,264	36,317	34,363	31,979	23,149	40,123	43,134	48,285	56,863
Darke	14,152	19,123	19,420	17,323	9,264	16,464	14,215	15,801	21,049
Defiance	19,141	21,201	18,613	21,487	13,667	21,646	22,066	19,034	18,057
Delaware	27,562	38,424	35,358	33,590	33,422	55,716	51,316	53,745	88,378
Erie	12,301	14,449	11,532	12,919	9,634	15,482	15,196	17,097	18,589
Fairfield	22,554	29,368	17,466	24,092	16,008	30,837	29,298	32,648	31,866
Fayette	9,859	12,188	14,149	8,442	4,103	14,099	19,690	14,474	14,554
Franklin	27,882	31,100	30,987	29,686	20,002	41,234	42,160	46,741	45,110
Fulton	18,786	24,375	16,721	25,979	12,892	24,259	22,840	21,352	15,805
Gallia	11,380	12,848	13,312	8,985	7,516	12,224	13,304	15,380	16,888
Geauga	27,987	30,826	24,807	26,852	12,765	40,109	40,124	38,293	42,708
Greene	12,491	16,083	17,542	33,708	13,926	24,489	21,298	22,609	23,269
Guernsey	32,677	36,762	28,969	25,704	14,347	29,494	36,329	41,885	47,970
Hamilton	13,227	13,351	14,468	11,040	14,017	14,627	18,695	21,140	20,111
Hancock	31,597	33,407	29,540	36,044	25,047	41,533	35,119	34,506	29,471
Hardin	24,276	48,355	24,937	32,690	12,469	33,450	28,890	26,827	29,363
Harrison	34,741	30,569	28,295	26,225	12,945	33,287	33,614	38,316	44,529
Henry	16,339	15,874	12,077	17,182	10,577	16,854	15,174	15,676	12,868
Highland	20,724	21,280	15,542	14,799	14,278	26,964	19,073	21,794	25,212

COMPARATIVE TABLE SHOWING PRODUCTION OF MEADOWS IN OHIO FOR NINE YEARS—Concluded.

Counties.	Tons of Hay.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Hocking	11,117	12,345	8,473	10,131	6,444	13,140	13,808	14,923	17,378
Holmes	19,237	27,125	20,827	19,911	14,668	27,686	24,619	28,525	31,364
Huron	34,863	40,775	33,353	30,932	26,574	51,278	40,131	45,416	45,577
Jackson	10,859	12,029	13,140	8,625	6,193	13,388	12,165	14,723	16,582
Jefferson	28,448	32,454	26,124	25,330	10,853	26,052	27,144	35,871	39,777
Knox	28,987	35,557	25,559	27,973	13,787	35,102	33,025	42,669	40,566
Lake	12,027	12,716	15,412	15,900	8,524	15,870	14,938	17,500	19,630
Lawrence	4,511	4,813	5,113	3,834	4,081	4,083	5,167	6,087	6,478
Licking	42,240	55,286	53,735	51,919	27,474	51,805	53,875	67,862	71,282
Logan	16,241	21,731	18,952	22,037	10,313	29,819	27,644	24,519	28,673
Lorain	44,487	49,466	37,790	36,527	33,482	79,180	53,727	61,826	65,705
Lucas	11,514	14,296	13,968	14,437	8,552	17,203	14,469	14,396	13,963
Madison	8,592	14,568	16,809	12,669	8,316	23,445	23,423	22,117	24,775
Mahoning	24,758	41,087	20,601	26,355	14,264	42,063	53,205	51,643	56,434
Marion	20,827	26,329	21,276	28,216	12,580	35,229	31,648	31,224	30,878
Medina	28,514	38,250	25,434	30,007	18,969	46,721	35,920	41,774	46,185
Meigs	10,242	16,659	14,717	10,720	5,338	16,837	18,894	21,411	22,414
Mercer	18,928	20,586	20,251	19,078	11,430	29,223	17,430	19,238	22,829
Miami	7,556	19,939	11,442	12,652	6,981	11,667	11,284	13,995	14,519
Monroe	31,154	26,592	18,950	12,724	9,201	22,438	23,136	26,498	34,596
Montgomery	14,435	16,307	15,132	13,257	12,625	18,141	16,307	22,261	20,436
Morgan	22,316	26,956	19,905	19,633	12,322	22,526	27,350	30,917	36,056
Morrow	26,962	41,133	31,227	29,591	18,626	49,217	39,499	42,587	48,822
Muskingum	34,990	44,901	32,823	35,747	18,242	35,262	43,958	51,499	54,468
Noble	21,708	26,720	23,465	16,370	12,326	23,149	25,861	29,592	38,673
Ottawa	14,697	16,387	11,232	11,107	10,006	16,026	16,884	17,018	19,083
Paulding	14,684	17,095	12,360½	12,104	7,345	16,141	16,542	14,377	14,025
Perry	18,210	22,950	17,460	18,788	12,289	22,870	21,396	27,248	29,517
Pickaway	9,983	12,640	10,807	15,033	8,702	12,192	12,663	13,777	16,472
Pike	5,306	5,054	3.615	3,378	4,417	7.796	5,705	7.678	16,012
Portage	33.559	32,971	21,124	21,999	11,275	38,177	43,880	49,816	50,243
Preble	7,581	9,917	10,509	7,482	8,347	10,699	11,592	13,032	14,067
Putnam	19,613	18,163	18,105	20,193	12,648	37,761	21,180	24,756	20,384
Richland	26,464	36,086	27,010	27,976	19,070	43,400	28,193	87,125	41,288
Ross	10,354	12,162	11.204	9,288	5,318	14,013	10,904	13,620	16,174
Sandusky	18,415	22,540	20,585	23,475	18,422	23,868	15,365	19,421	16,858

Scioto	9,649	9,046	9,310	8,592	6,872	11,272	15,443	12,054	12,838
Seneca	29,643	29,520	23,836	24,938	21,752	41,128	25,712	33,183	30,645
Shelby	10,392	14,995	11,252	15,116	7,692	16,178	13,039	13,813	17,009
Stark	51,927	56,360	45,563	50,630	25,341	60,165	45,824	61,989	68,647
Summit	29,509	31,020	26,815	24,144	10,848	32,613	28,245	35,491	37,777
Trumbull	61,407	61,081	43,870	35,496	24,715	62,081	71,980	75,017	80,071
Tuscarawas	55,817	46,155	35,951	37,129	23,590	44,626	43,014	55,935	56,790
Union	19,436	28,344	25,456	19,104	13,181	42,487	38,451	32,362	38,254
Van Wert	24,716	28,592	25,956	25,155	10,582	30,495	23,842	22,337	23,016
Vinton	8,751	11,099	11,513	7,686	4,478	12,081	13,966	14,113	14,593
Warren	16,120	16,129	14,488	12,927	17,248	23,123	20,357	24,985	24,554
Washington	25,709	34,991	24,427	23,722	14,971	29,485	31,917	40,234	43,539
Wayne	41,649	47,541	32,591	37,849	16,858	56,252	42,143	47,473	51,617
Williams	28,843	30,958	28,586	34,187	21,769	27,981	22,325	24,590	22,495
Wood	23,121	33,997	28,847	30,465	18,758	33,647	30,514	29,403	23,231
Wyandot	23,731	26,922	26,371½	29,925	14,080	30,041	23,028	26,465	25,985
Total product	1,972,659	2,323,978	1,903,963	1,925,389	1,236,315	2,544,248	2,336,794	2,650,066	2,862,482
Total area	1,776,075	2,001,111	1,661,038	1,941,274	2,037,931	2,239,212	2,002,716	2,159,005	2,163,000

Average area for 9 years, 1,997,929 acres.
Average product for 9 years, 2,195,099 tons.

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER IN OHIO FOR NINE YEARS.

Counties.	Tons of Hay.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	4,963	2,731	7,425	1,160	1,438	1,585	3,906	1,023	1,714
Allen	15,684	8,868	18,057	350	1,773	9,879	25,372	5,746	8,087
Ashland	16,998	13,340	32,459	9,795	6,002	10,488	21,891	13,665	11,677
Ashtabula	2,785	3,384	6,780	4,041	1,314	879	1,004	778	1,223
Athens	2,253	880	2,450	400	296	950	1,146	291	268
Auglaize	12,062	8,468	15,585	1,967	1,512	9,501	12,148	6,622	8,236
Belmont	6,372	1,899	12,919	2,073	694	1,958	3,145	513	767
Brown	1,432	1,041	2,351	653	719	792	2,552	1,151	1,258
Butler	12,847	9,859	17,278	2,057	5,629	9,104	13,796	7,373	9,950
Carroll	3,984	2,575	8,457	826	509	1,642	6,804	2,478	1,965
Champaign	20,244	13,762	24,238	1,813	5,068	14,494	16,252	13,892	13,720
Clark	12,211	10,553	21,675	2,337	5,622	10,297	16,467	11,346	15,167
Clermont	3,038	2,326	4,333	905	2,022	1,536	1,304	1,804	2,140
Clinton	8,415	5,249	18,334	3,251	4,109	3,307	5,118	2,841	4,013
Columbiana	8,931	2,163	14,857	3,337	3,326	8,534	11,829	3,253	2,409
Coshocton	8,791	3,122	10,478	2,727	809	1,773	5,071	2,152	3,725
Crawford	14,857	11,323	22,271	5,346	7,100	9,281	18,711	2,494	4,810
Cuyahoga	3,432	1,549	4,419	2,626	2,341	1,524	2,298	1,091	934
Darke	26,603	21,540	30,699	1,194	4,426	20,442	25,439	15,539	18,836
Defiance	5,191	8,747	23,093	1,333	6,472	6,980	12,706	5,806	8,227
Delaware	10,641	4,947	21,587	3,003	3,683	9,217	11,055	5,461	5,507
Erie	5,985	4,837	10,397	2,046	3,867	2,173	5,451	5,555	5,206
Fairfield	16,816	7,879	22,390	4,205	7,183	13,520	11,613	5,288	5,234
Fayette	4,069	2,409	10,305	894	2,722	3,658	2,073	1,910	1,511
Franklin	9,538	5,124	19,196	3,211	5,756	5,808	8,090	6,291	7,283
Fulton	2,444	9,374	18,917	2,681	7,182	7,630	13,176	11,378	15,389
Gallia	1,823	1,127	2,892	962	514	821	1,552	516	951
Geauga	2,792	2,710	9,155	2,735	645	1,143	2,255	1,128	1,207
Greene	9,450	6,731	18,796	1,995	6,621	9,212	11,256	6,126	8,845
Guernsey	3,788	1,202	5,024	672	342	645	1,537	353	590
Hamilton	4,923	5,578	5,088	1,048	3,161	4,087	6,256	5,644	9,604
Hancock	14,161	19,003	32,576	1,923	3,211	12,233	23,238	7,903	14,925
Hardin	12,864	10,249	21,494	374	1,291	6,745	14,264	5,060	5,682
Harrison	2,648	2,682	5,878	1,219	315	573	2,098	470	219
Henry	2,607	9,331	17,744	1,935	6,226	3,201	9,921	7,877	10,443

Highland	5,372	3,071	13,825	883	1,811	3,022	5,361	2,023	3,361
Hocking	3,240	1,652	3,720	895	671	1,079	1,209	361	876
Holmes	10,093	4,179	15,490	12,084	3,946	4,369	13,275	9,670	9,239
Huron	15,607	10,359	26,941	7,175	7,878	4,769	11,912	8,156	9,682
Jackson	401	227	1,053	141	136	134	98	17	68
Jefferson	6,247	1,789	9,917	3,036	823	1,935	4,664	1,773	1,396
Knox	16,118	8,189	20,210	7,242	3,775	9,511	16,144	8,570	11,454
Lake	1,491	764	1,731	984	353	474	1,972	587	556
Lawrence	1,025	458	1,082	507	389	252	940	595	804
Licking	15,430	6,177	15,814	4,802	6,576	10,436	9,794	2,610	5,095
Logan	17,563	12,045	26,675	498	9,667	13,049	13,772	11,142	8,814
Lorain	6,984	3,856	14,396	4,689	4,343	2,753	5,294	3,425	2,352
Lucas	1,718	5,250	10,200	2,081	3,554	4,381	6,811	5,313	6,369
Madison	9,224	4,812	5,220	2,618	4,065	4,186	6,939	4,788	6,598
Mahoning	9,144	4,404	19,323	3,153	2,292	5,960	9,346	5,366	2,792
Marion	10,915	9,745	20,352	3,614	4,214	6,861	15,088	7,664	8,905
Medina	15,203	8,723	23,509	5,316	6,218	9,661	15,602	7,928	3,861
Meigs	2,181	1,067	3,555	596	363	1,765	2,314	616	654
Mercer	16,166	7,502	14,941	757	960	10,081	16,020	9,369	8,910
Miami	12,090	10,766	18,894	941	1,665	10,012	15,212	9,841	758
Monroe	3,559	634	6,285	279	64	459	472	93	285
Montgomery	14,978	12,192	22,432	2,041	4,194	9,959	20,678	12,418	19,582
Morgan	5,178	1,832	8,828	855	776	2,435	2,165	818	1,188
Morrow	13,825	6,068	21,713	8,205	8,343	7,746	9,950	5,414	3,716
Muskingum	6,696	2,712	9,283	2,617	1,050	2,590	2,120	786	1,832
Noble	2,140	1,081	5,352	285	384	1,099	1,314	341	365
Ottawa	2,643	5,601	13,286	2,186	3,017	527	4,501	4,572	3,380
Paulding	1,773	3,632	7,463	486	1,347	2,403	5,675	2,767	5,251
Perry	8,110	4,545	8,035	1,005	508	1,237	1,651	438	1,332
Pickaway	9,188	5,434	18,997	2,595	5,294	8,506	7,935	4,671	4,806
Pike	3,177	2,366	3,677	943	1,444	1,755	1,510	624	683
Portage	11,953	4,945	18,869	5,384	2,104	8,029	20,968	6,561	5,874
Preble	11,597	10,045	22,081	2,318	4,144	9,610	14,329	7,925	11,064
Putnam	6,697	13,955	19,852	955	2,654	7,412	12,096	6,912	10,226
Richland	19,387	13,068	34,156	12,199	9,499	10,140	20,488	6,306	7,209
Ross	7,649	4,798	11,076	2,136	8,558	5,932	5,273	1,832	3,306
Sandusky	10,064	10,877	21,271	6,562	7,517	7,973	16,285	16,061	17,536
Scioto	2,601	2,161	3,389	1,162	1,315	1,274	1,865	809	717
Seneca	20,941	21,565	38,937	3,438	7,473	11,799	28,525	15,091	18,566
Shelby	12,637	9,939	18,195	836	1,854	9,934	12,076	9,371	10,923
Stark	18,002	4,291	23,112	10,351	7,816	10,073	27,494	13,022	7,217
Summit	6,150	5,093	17,263	5,198	2,968	8,081	14,549	8,864	12,371
Trumbull	5,017	3,284	14,471	5,607	2,455	2,711	4,656	20,478	2,218
Tuscarawas	4,659	1,117	10,735	3,262	2,364	2,055	8,431	2,359	2,290
Union	13,979	5,075	19,541	1,763	3,115	6,205	11,794	5,995	7,772
Van Wert	6,722	8,881	13,215	585	860	6,865	13,209	4,886	7,367
Vinton	1,068	510	1,915	258	301	542	548	192	353
Warren	8,522	5,266	16,740	1,928	5,435	6,754	10,532	3,367	6,387
Washington	2,444	1,433	10,806	755	787	2,034	3,038	883	2,265

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER IN OHIO FOR NINE YEARS—Concluded.

Counties.	Tons of Hay.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Wayne	21,305	15,416	41,009	17,941	11,188	12,758	33,169	22,936	14,446
Williams	4,744	10,550	21,358	3,558	7,463	8,151	16,445	10,057	13,694
Wood	7,463	8,382	19,424	3,277	6,289	5,532	12,657	10,878	14,375
Wyandot	20,418	13,686	17.888	2,185	4,150	8,679	16,249	5,505	6,583
Total product	749,225	552,021	1,336,599	252,507	299,377	506,589	865,333	487,513	544,546

Average product for 9 years, 621,523 tons.

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER SEED IN OHIO FOR NINE YEARS.

Counties.	Bushels of Seed.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	3,768	793	10,004	1,585	1,729	1,020	3,498	446	1,100
Allen	4,930	1,045	18,999	361	629	6.320	14,135	2,464	1,843
Ashland	4,689	989	17,618¾	3,726	6,137	3,812	5,086	1,107	4,862
Ashtabula	77	41	2,268	285	60	11	117	3	29
Athens	191	21	191	35	31	93	201	22	66
Auglaize	7,296	1,340	13,702	255	1,143	3,264	8,913	3,310	743
Belmont	2,947	44	8,125	422	133	127	1,337	14	10
Brown	920	143	2,798	270	639	675	408	47	127
Butler	6,520	570	12.466	1,751	4,518	4,884	5,225	894	4,899
Carroll	773	993	6,038	624	643	275	2,501	418	375
Champaign	8,374	1,980	20,524	229	4,291	8,895	18,149	1,561	1,845
Clark	8,969	1,244	13,109	514	7,153	7,742	17,651	3,497	5,280
Clermont	890	39	1,578	179	578	95	....	8	139
Clinton	7,929	1,256	11,976	2,487	10.293	3,405	2,790	1,241	2,158
Columbiana	601	21	6,541	328	1,638	562	1,333	88	255
Coshocton	5,211	367	10,758	1,540	1,178	800	2,048	149	1,626
Crawford	5,105	1,958	20,605	3,459	15,820	7,304	7,673	1,828	1,389
Cuyahoga	112	15	1,344	58	60	11	15	2	....
Darke	17,105	4,788	27,478	700	5,236	7,938	14,462	7,143	5,616
Defiance	4,419	5,030	18,253	2,317	13,903	14,694	15,475	4,412	4,990
Delaware	2,428	220	8,133	678	3,200	5,620	4,886	311	1,259
Erie	1,434	506	9,414	1,488	3,227	1,069	2,024	782	1,188
Fairfield	17,068	1,211	19,902	1,289	12,844	20,573	20,040	3,826	3,093
Fayette	4,660	249	11,947	638	4,603	2,108	1,657	813	622
Franklin	7,845	419	16,952	602	8,078	6,003	8,713	1,947	2,729
Fulton	693	2,860	17,549	3,236	5,314	5,521	10,481	3,882	4,431
Gallia	224	122	817	372	84	145	278	51	247
Geauga	28	50	1,749	242	6	68	11	22	9
Greene	11,152	1,545	15,318	821	10,684	5,613	9,516	2,870	4,870
Guernsey	1,102	136	3,182	242	43	123	493	8	49
Hamilton	1,145	230	2,154	194	1,398	843	985	231	535
Hancock	4,489	3,584	27,923	2,526	2,966	14,890	15,729	3,255	3,367
Hardin	3,830	1,233	14,793	214	608	7,985	11,266	1,571	730
Harrison	1,270	2,627	5,829	716	143	169	1,022	47	20
Henry	2,161	4,831	20,098	2,663	8,588	10,484	11,714	3,591	3,379

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER SEED IN OHIO FOR NINE YEARS—Continued.

Counties.	Bushels of Seed.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	[illegible]
Highland	6,753	545	18,006	1,548	5,174	3,094	3,679	1,527	[illegible]
Hocking	2,293	167	2,946	302	391	1,076	1,559	284	[illegible]
Holmes	5,806	1,112	12,337	6,177	5,832	1,876	4,121	1,287	[illegible]
Huron	3,586	1,910	22,836	3,076	9,986	1,298	4,990	832	2,976
Jackson	42		160		6	2			
Jefferson	3,002	61	8,979	1,689	174	168	1,800	414	63
Knox	8,533	836	17,008	3,565	4,816	4,716	10,085	766	1,034
Lake	53	48	1,045	60	186	30	22	10	12
Lawrence	56	33	254	107	161	3	177	19	53
Licking	10,107	1,736	17,362	1,248	8,548	10,876	9,724	72	876
Logan	7,629	1,079	16,205	207	1,465	14,245	10,247	2,754	626
Lorain	494	197	6,741	638	1,083	387	822	281	535
Lucas	735	1,582	10,172	1,059	2,745	2,180	4,800	1,412	1,097
Madison	4,298	224	7,896	902	8,884	4,205	4,506	442	1,163
Mahoning	535	120	7,760	360	1,196	763	902	263	275
Marion	2,067	1,153	14,073	1,980	8,234	8,532	10,257	323	1,513
Medina	2,654	1,020	13,965	1,473	2,466	2,025	3,739	530	1,822
Meigs	183	37	444	36	48	106	111	10	25
Mercer	12,544	2,004	15,465	237	1,467	4,734	7,660	5,831	1,459
Miami	8,964	1,832	13,611	482	2,336	3,109	13,565	2,647	4,907
Monroe	1,911	82	5,574	33	7	76	172		18
Montgomery	767	1,547	16,286	888	3,589	4,605	10,737	3,066	6,741
Morgan	1,954	44	5,269	166	224	456	575	31	165
Morrow	1,666	561	17,085	2,350	13,370	8,737	6,830	396	443
Muskingum	2,677	114	6,170	587	427	853	822	12	176
Noble	740	44	2,451	28	152	128	188	2	2
Ottawa	683	840	8,748	1,635	1,502	191	830	723	767
Paulding	1,376	1,733	9,528¼	513	2,047	2,606	8,234	1,656	2,805
Perry	6,110	980	9,933	967	1,326	2,117	1,624	355	835
Pickaway	12,256	1,025	15,320	1,579	7,735	12,957	13,361	5,274	5,517
Pike	2,265	300	3,590	588	1,278	2,078	1,594	929	789
Portage	1,844	176	10,644	945	478	561	2,027	859	2,291
Preble	6,640	1,255	14,593	1,307	6,076	6,814	8,438	3,339	5,064
Putnam	4,396	1,199	33,306	793	1,564	4,831	12,200	2,207	1,557
Richland	5,294	903	32,190	4,248	10,063	4,878	6,593	1,385	2,980

Ross	11,191	1,240	16,134	1,709	5,792	8,699	5,808	2,379	3,241
Sandusky	3,436	2,134	20,430	3,503	3,775	4,764	7,446	2,692	2,823
Scioto	738	334	1,691	565	700	324	373	183	128
Seneca	8,683	3,006	34,620	3,412	12,549	14,378	14,960	3,857	5,231
Shelby	6,342	1,877	17,033	288	1,558	5,312	6,678	2,917	2,105
Stark	3,553	153	12,609	1,866	6,084	1,202	1,645	1,282	2,789
Summit	597	121	7,440	655	721	525	1,377	297	1,404
Trumbull	229	38	4,408	511	64	34	178	144	233
Tuscarawas	2,534	76	9,105	1,654	3,547	776	3,980	330	1,720
Union	3,112	343	7,747	608	3,994	3,686	4,967	395	1,057
Van Wert	3,694	1,165	10,959	380	974	2,270	5,069	2,906	1,584
Vinton	330	9	552	19	212	335	238	37	34
Warren	4,952	277	9,560	896	5,981	1,191	2,153	563	1,301
Washington	721	44	6,597	171	308	439	623	56	568
Wayne	4,454	1,211	17,741	5,637	9,812	4,316	4,135	1,855	6,065
Williams	2,880	6,322	17,736	4,621	7,866	8,170	14,777	5,396	7,336
Wood	4,080	2,086	21,372	4,032	5,089	6,708	18,801	3,345	5,149
Wyandot	7,983	1,906	18,510	1,864	7,520	10,890	9,226	1,095	2,103
Total product	350,777	90,841	1,032,531	111,210	339,290	342,472	489,258	121,028	165,145

Average product for 9 years, 338,061 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF IRISH POTATOES IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	13,701	18,523	14,339	41,607	11,109	18,084	16,832	23,350	34,581
Allen	51,029	44,459	23,188	96,243	67,093	99,723	53,644	55,240	413,778
Ashland	93,509	88,345	62,779	110,031	145,224	93,217	64,449	67,240	98,408
Ashtabula	236,789	400,765	244,397	387,018	613,805	306,763	204,063	193,813	242,650
Athens	33,665	32,445	25,399	63,707	30,593	60,332	58,769	63,917	70,400
Auglaize	45,914	45,952	25,304	145,105	83,338	116,775	60,689	75,152	105,780
Belmont	90,658	57,129	58,726	71,118	46,414	108,389	140,346	183,101	138,033
Brown	24,745	38,652	29,013	91,901	49,616	50,425	21,216	56,659	102,539
Butler	63,276	75,759	63,323	192,155	144,883	121,501	78,658	106,384	121,746
Carroll	63,610	58,008	54,195	112,880	89,341	60,915	51,235	65,737	72,894
Champaign	27,485	41,915	21,208	95,268	56,619	105,864	57,027	86,142	106,866
Clark	49,355	54,574	41,529	114,023	73,560	75,585	80,437	114,914	105,449
Clermont	69,744	56,034	62,456	124,647	81,737	82,216	67,118	107,087	107,918
Clinton	37,002	40,297	27,325	80,926	46,365	54,306	24,316	57,987	72,607
Columbiana	184,534	185,576	149,302	265,009	326,347	169,694	163,737	236,879	166,352
Coshocton	85,070	71,941	65,896	123,641	115,390	89,596	63,282	96,662	131,911
Crawford	109,739	123,988	73,451	134,246	228,213	102,915	70,850	73,915	136,519
Cuyahoga	551,647	743,559	543,867	492,300	770,201	452,298	405,137	298,134	339,267
Darke	90,034	100,463	59,242	251,336	149,572	170,106	101,303	125,245	188,661
Defiance	108,318	72,774	51,514	105,928	87,436	90,554	68,863	48,656	145,140
Delaware	31,619	33,351	20,734	49,222	48,121	82,766	57,147	65,639	76,543
Erie	263,408	312,730	248,383	313,530	326,118	170,489	216,522	161,498	273,852
Fairfield	84,054	71,746	54,052	137,465	74,280	111,800	83,625	148,026	126,021
Fayette	6,651	6,011	10,757	17,240	9,443	15,846	10,907	31,552	27,968
Franklin	68,766	82,204	75,691	119,545	86,497	176,931	210,649	333,553	263,136
Fulton	131,068	140,271	88,576	112,681	148,790	112,759	139,344	68,727	197,218
Gallia	15,205	13,015	19,898	34,002	31,163	49,672	62,300	60.093	57,463
Geauga	228,170	314,719	225,630	303,396	391,486	194,325	155,127	107,202	108,257
Greene	51,225	65,063	48,760	95,699	63,470	209,305	51,076	72,717	84,781
Guernsey	42,216	33,423	33,776	52,423	20,695	45,034	47,243	56,557	68,332
Hamilton	263,909	202,669	261,545	456,580	282,563	281,924	327,756	424,669	469,333
Hancock	88,728	80,959	52,139	117,174	116,110	95,114	68,128	58,008	185,327
Hardin	70,502	98,941	47,392	125,952	484,884	208,507	106,087	122,215	165,655
Harrison	32,977	27,647	30,256	31,475	35,286	47,117	37,227	46,093	52,911
Henry	100,657	87,715	64,213	93,829	85,559	113,572	92,468	53,922	129,663

Highland	20,043	21,862	17,477	59,551	35,152	36,499	25,535	34,909	65,851
Hocking	64,579	35,481	38,270	76,213	43,057	53,244	50,765	51,565	67,459
Holmes	79,833	82,123	54,493	114,280	103,516	74,183	50,801	66,091	111,185
Huron	96,619	170,493	92,544	168,806	246,954	110,475	103,279	89,474	146,475
Jackson	17,637	11,083	13,791	45,390	15,515	24,764	16,489	27,883	28,710
Jefferson	58,241	46,224	57,466	96,305	79,009	65,647	98,300	136,822	130,623
Knox	44,286	55,770	39,236	103,199	108,101	80,383	53,188	64,492	97,304
Lake	155,542	208,869	166,067	186,031	255,631	162,467	171,606	99,683	100,479
Lawrence	20,039	17,874	18,633	42,400	24,306	27,417	42,095	30,790	39,085
Licking	106,814	81,105	69,427	170,258	104,574	136,196	99,660	143,892	170,563
Logan	25,702	37,856	22,955	63,674	49,411	86,830	39,129	58,329	72,404
Lorain	186,144	234,986	178,502	210,742	270,800	181,182	151,283	123,206	163,079
Lucas	280,703	343,516	251,471	335,961	260,356	210,048	248,175	156,153	326,224
Madison	15,586	15,356	13,372	32,803	14,385	30,679	26,896	44,733	39,732
Mahoning	172,425	197,760	133,950	260,534	210,881	171,666	163,656	101,750	134,363
Marion	58,589	57,598	35,823	90,626	97,006	99,745	54,853	74,488	84,224
Medina	216,759	245,032	178,142	237,196	270,125	148,562	118,286	91,329	138,244
Meigs	42,305	54,839	52,378	92,278	55,884	86,550	81,984	117,378	100,708
Mercer	31,835	32,896	23,317	94,787	54,628	72,156	37,045	46,459	99,085
Miami	71,413	66,449	45,426	180,909	101,089	131,001	97,214	136,144	137,295
Monroe	121,005	85,368	81,186	77,965	37,130	94,118	104,605	121,784	116,333
Montgomery	72,305	93,107	58,772	189,518	93,431	118,813	89,253	120,126	171,223
Morgan	38,204	29,746	29,608	58,963	35,397	53,144	58,303	70,034	65,083
Morrow	82,940	59,178	55,672	92,307	112,076	90,431	52,973	54,297	86,052
Muskingum	67,285	50,667	57,078	114,463	82,136	113,779	112,857	148,913	137,705
Noble	52,563	40,685	35,949	45,793	26,378	48,977	63,002	77,991	70,680
Ottawa	34,506	36,360	33,258	50,535	58,804	34,557	29,380	24,185	51,082
Paulding	155,748	31,663	18,171	85,738	63,214	57,514	50,811	33,002	85,524
Perry	57,580	41,315	41,625	86,165	50,544	53,792	40,482	74,159	78,423
Pickaway	31,765	21,104	29,530	63,625	28,140	91,189	69,633	90,691	104,943
Pike	36,346	30,884	24,299	63,156	20,275	38,592	22,053	66,252	45,397
Portage	712,378	775,471	473,724	637,293	778,784	482,407	378,517	231,501	331,107
Preble	40,572	53,154	31,611	106,609	66,178	61,891	37,379	47,381	57,684
Putnam	74,619	80,482	48,615	133,975	99,537	34,341	65,535	54,797	172,016
Richland	161,448	225,483	113,671	237,819	253,721	158,051	88,658	104,790	161,158
Ross	48,194	38,889	42,483	107,610	39,823	125,347	140,307	144,341	148,960
Sandusky	162,899	200,687	140,743	188,396	235,510	160,912	120,586	102,293	230,893
Scioto	81,045	67,273	58,348	103,940	57,618	95,255	84,786	87,898	93,924
Seneca	113,655	155,098	82,232	148,827	194,062	147,993	105,922	98,966	208,771
Shelby	36,202	41,111	25,364	109,525	57,520	70,271	33,207	49,689	82,751
Stark	314,916	415,051	258,558	412,341	437,378	240,987	249,616	221,361	237,907
Summit	239,935	349,608	215,308	287,431	316,211	207,741	160,242	139,320	192,556
Trumbull	318,782	351,131	207,751	453,529	493,047	280,690	242,470	194,852	202,998
Tuscarawas	139,306	160,579	144,449	274,624	246,514	170,396	131,705	174,543	196,494
Union	10,572	12,844	12,092	35,317	20,972	45,110	26,809	31,692	52,286
Van Wert	60,440	43,550	25,393	86,270	58,120	75,175	37,337	43,321	114,448
Vinton	21,052	23,728	22,446	51,432	27,558	28,665	30,194	36,405	35,030
Warren	25,520	42,321	36,788	162,799	58,702	48,970	40,195	59,053	80,158
Washington	122,314	109,693	103,866	117,174	78,869	150,990	163,630	201,767	193,265
Wayne	241,197	234,325	150,250	274,178	315,879	177,390	115,030	98,126	166,529

COMPARATIVE TABLE SHOWING PRODUCTION OF IRISH POTATOES IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	112,681	86,237	44,184	70,573	79,983	63,886	68,125	59,662	136,965
Wood	94,274	104,640	70,222	103,283	86,775	95,878	105,530	82,114	175,748
Wyandot	57,312	67,397	32,361 ½	80,716	126,330	69,260	42,4[illegible]3	51,303	68,573
Total product	9,203,633	10,097,418	7,286,582	12,906,134	12,557,717	10,069,933	8,436,397	8,839,136	11,793,716
Total area	118,584	118,165	114,832	153,362	253,884	157,923	122,258	118,189	117,242

Average area for 9 years, 141,604 acres.
Average product for 9 years, 10,132,296 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF TOBACCO IN OHIO FOR NINE YEARS.

Counties.	Pounds of Tobacco.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	2,131,862	1,828,170	786,098	1,307,617	917,280	2,859,385	2,233,204	2,886,150	2,782,532
Allen		40	520					100	
Ashland		1,400	2,995	4,800	5,600	2,500	9,320	12,897	5,787
Ashtabula									200
Athens	2,600	10,300	3,700	6,010	300	8,800	5,130	20,650	9,200
Auglaize	11,550	30,860	4,100	7,880	6,580	16,600	23,140	16,480	11,560
Belmont	704,452	1,289,763	1,226,297	1,306,728	639,956	892,332	1,552,846	1,142,864	834,501
Brown	4,534,064	3,300,029	2,008,930	2,522,900	2,357,186	3,712,431	3,344,460	3,994,293	4,492,314
Butler	1,029,585	1,035,965	531,662	371,920	468,091	452,305	546,413	799,202	818,516
Carroll									
Champaign	55,262	98,080	19,100	16,474	18,400	15,850	16,600	25,805	5,000
Clark	222,335	251,060	150,260	121,737	14,566	145,141	153,035	34,445	135,725
Clermont	2,416,922	1,597,850	991,950	1,301,950	1,316,965	2,165,843	1,716,210	2,209,680	2,103,507
Clinton	74,624	102,546	23,590	76,500	16,500	33,500	4,900	26,850	51,696
Columbiana					50				
Coshocton		10				200			
Crawford					215		550		
Cuyahoga							100	250	
Darke	10,451,175	10,270,356	5,768,440	2,700,049	3,309,618	3,909,870	4,603,765	6,566,057	5,990,050
Defiance	3,950	5,650	3,600	3,400		2,850	2,240	2,650	4,300
Delaware		100						191	100
Erie			80	100				1,300	80
Fairfield	150		4	200	800	40	500	100	
Fayette		45		30					200
Franklin		20		20	10				
Fulton									
Gallia	721,720	890,582	235,955	475,400	483,643	506,253	586,471	455,725	312,905
Geauga			24			75			
Greene	489,975	492,439	190,540	79,650	128,810	214,776	131,908	183,926	272,281
Guernsey	99,085	240,461	218,945	252,635	99,087	185,285	161,460	166,704	155,167
Hamilton	189,270	103,422	106,940	174,120	44,599	211,411	226,633	145,058	178,000
Hancock			25¼		35		60		
Hardin									350
Harrison				80		4			

COMPARATIVE TABLE SHOWING PRODUCTION OF TOBACCO IN OHIO FOR [illegible]

Counties.	Pounds of Tobacco								
	1899.	1898.	1897.	1896.	1895.	1894.	[illegible]	[illegible]	[illegible]
Henry	100	120				[illegible]	[illegible]	[illegible]	
Highland	33,650	23,270	14,060	9,570	9,000	[illegible]	[illegible]	[illegible]	
Hocking		400	120	550		[illegible]	[illegible]		
Holmes			75			300	[illegible]		
Huron								[illegible]	
Jackson								[illegible]	
Jefferson	7,800			192				[illegible]	
Knox		10			50	300			
Lake			650	2,000	4,000	3,900		[illegible]	[illegible]
Lawrence	70,848	40,297	17,800	23,700	40,530	23,775			[illegible]
Licking	2,000				142				
Logan	16,700	66,000	15	31,048	11,755	27,750	19,500	[illegible]	[illegible]
Lorain	178				186				
Lucas	25	300		100					
Madison		20			600	600	50		
Mahoning	75,210								
Marion			100						
Medina	223,966	238,440	134,500	110,450	180,627	231,471	270,600	283,266	[illegible]
Meigs	23,900	1,900	9,330	10,025	5,000	4,050	690		
Mercer	30,600	18,200	1,025			6,394	1,850	7,495	3,700
Miami	3,640,545	3,056,706	1,964,420	1,126,102	903,259	1,234,815	1,488,893	2,289,255	1,479,835
Monroe	728,515	1,388,350	1,293,479	1,496,205	748,578	1,334,203	1,864,740	1,580,663	1,073,317
Montgomery	13,691,551	12,918,397	7,132,269	5,227,139	5,459,681	6,801,150	5,114,350	10,536,274	8,768,756
Morgan	23,852	101,850	60,270	153,525	93,285	283,090	377,454	275,260	231,645
Morrow				32			258		
Muskingum		13,340	3,800	9,200	2,500	4,000	8,130	4,860	639
Noble	642,144	1,150,675	833,680	1,321,737	601,408	1,163,432	2,534,436	1,141,891	899,572
Ottawa									
Paulding	6,950	4,000	800	620		4,020	2,775	11,420	8,500
Perry	2,000	7,400	1,500		3,000	320	1,285	2,850	405
Pickaway				40			150		
Pike	26,070	17,443	22,910	27,900	3,100	30,825	21,500	21,825	19,080
Portage		3,100	1,000	50			200	3,800	620

Preble	5,724,404	4,905,356	3,128,000	1,838,148	2,103,300	2,274,123	1,840,017	2,554,326	2,973,224
Putnam	50	597	320	70	......	......	......	100	......
Richland	......	......	......	......	......	......	......	......	......
Ross	......	......	......	5,450	2,300	26,800	18,230	22,130	13,819
Sandusky	......	......	......	......	......	......	......	......	......
Scioto	348,315	283,390	182,275	237,160	77,400	365,887	228,550	127,150	127,855
Seneca	3,600	500	......	......	......	......	75	......	......
Shelby	173,230	165,021	37,968	17,000	10,600	35,800	47,620	66,375	89,357
Stark	1,000	570	4,100	......	950	......	......	9,700	4,441
Summit	......	......	......	......	......	3,600	5,700	5,000	6,350
Trumbull	......	75	......	......	......	......	......	......	250
Tuscarawas	......	......	......	300	......	200	......	......	102
Union	150	......	......	125	125	300	......	......	......
Van Wert	......	......	25	......	......	......	......	2,500	700
Vinton	2,200	1,850	190	25	......	......	......	600	100
Warren	3,446,973	3,217,078	1,796,522	1,506,088	4,244,240	1,819,056	1,591,990	2,216,868	1,912,887
Washington	4,630	54,190	78,934	124,613	72,930	269,119	465,981	308,353	181,364
Wayne	334,710	306,021	248,315	186,825	209,490	235,112	220,750	335,765	262,645
Williams	......	......	......	......	......	......	3,500	2,000	......
Wood	......	150	......	......	......	......	......	......	125
Wyandot	......	......	18	......	......	......	......	......	395
Total product	52,484,457	49,534,158	29,242,225	24,196,189	24,601,327	31,573,098	31,511,464	40,639,833	36,762,994
Total area	56,242	57,659	40,823	34,608	32,856	41,594	50,543	46,986	41,354

Average area for 9 years, 44,741 acres.
Average product for 9 years, 35,616,194 pounds.

COMPARATIVE TABLE SHOWING PRODUCTION OF BUCKWHEAT IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	40	99	158	42	13	4	64	93	123
Allen	115	221	188	602	41	235	246	1,265	1,598
Ashland	252	747	2,432	4,508	2,501	815	938	2,744	1,837
Ashtabula	33,974	65,137	55,960	71,929	89,775	49,181	35,571	38,476	27,607
Athens	65	....	346	506	280	279	236	444	748
Auglaize	230	319	1,022	4,909	1,222	1,412	1,442	2,605	2,633
Belmont	1,344	1,951	1,234	2,017	1,266	248	1,142	369	1,535
Brown	35	196	156	87	....	20	40	121	230
Butler	....	....	56	1,097	14	203	128	26	402
Carroll	440	1,872	821	3,071	2,936	551	1,233	1,343	1,444
Champaign	67	809	870	1,171	989	1,340	979	292	1,235
Clark	56	90	172	196	147	244	569	88	508
Clermont	153	462	200	231	169	53	324	217	478
Clinton	208	148	325	935	237	128	72	479	698
Columbiana	988	2,165	2,058	5,019	6,952	1,722	1,875	2,309	2,265
Coshocton	1,156	1,911	1,444	6,025	4,457	1,075	1,605	1,830	1,631
Crawford	163	701	1,090	2,241	904	1,152	923	1,434	461
Cuyahoga	221	84	279	315	1,276	321	81	498	195
Darke	534	847	1,354	2,228	820	331	198	1,502	1,781
Defiance	2,817	1,915	2,812	2,166	284	1,965	898	2,322	4,389
Delaware	383	921	975	1,426	265	316	1,167	1,618	1,476
Erie	2,428	3,482	4,582	11,342	4,673	4,261	3,084	6,548	5,741
Fairfield	147	676	182	762	828	150	68	188	211
Fayette	....	25	47	385	....	320	25	53	122
Franklin	159	801	1,946	2,469	323	927	829	1,658	1,660
Fulton	7,341	5,491	7,208	8,119	4,300	7,408	5,722	5,888	8,782
Gallia	68	119	200	272	64	167	71	335	549
Geauga	1,575	5,028	5,487	6,988	5,975	2,409	2,955	6,452	3,912
Greene	121	129	176	468	50	5	46	92	114
Guernsey	1,097	1,617	1,738	2,880	872	885	7,489	1,217	2,032
Hamilton	15	176	60	674	30	....	40	494	251
Hancock	168	413	1,049	1,009	449	695	509	1,444	3,156
Hardin	29,358	314	658	1,330	550	1,563	922	1,480	1,840
Harrison	84	570	241	1,118	983	485	315	480	679
Henry	2,862	3,567	3,627	3,131	28,426	2,254	1,308	2,001	2,915

Highland	189	197	141	508	85	108	102	135	144
Hocking	1,792	2,137	1,127	2,830	3,623	1,303	622	1,200	1,113
Holmes	200	762	1,032	4,256	3,727	836	943	1,970	1,833
Huron	719	1,956	3,182	4,465	2,437	1,714	838	2,949	3,657
Jackson	1,509	2,254	1,823	1,129	658	206	249	872	385
Jefferson	128	760	303	997	972	429	288	503	496
Knox	347	1,043	1,634	10,182	3,510	583	1,138	2,516	1,845
Lake	1,263	955	917	2,895	3,086	2,138	741	879	1,569
Lawrence	13	93	119	307	161	50	29	111	....
Licking	1,380	3,059	2,904	9,928	1,396	900	1,334	2,302	1,082
Logan	124	813	1,370	2,385	1,287	1,210	331	1,351	927
Lorain	190	333	561	1,092	675	838	691	1,373	188
Lucas	13,260	8,327	10,232	10,028	6,799	7,393	4,812	5,196	9,786
Madison	61	54	62	278	37	185	133	192	399
Mahoning	1,628	1,713	2,559	5,135	2,674	1,319	8,233	4,534	2,547
Marion	102	543	325	343	434	179	379	912	1,429
Medina	30,370	1,050	1,226	4,439	952	373	644	861	1,169
Meigs	107	321	233	242	142	41	492	200	376
Mercer	139	389	754	1,909	238	296	174	4,323	1,211
Miami	55	57	25	261	55	26	242	337	627
Monroe	4,392	4,675	1,918	5,475	6,688	1,134	1,423	2,256	3,497
Montgomery	36	146	20	180	190	48	129	69	98
Morgan	631	874	518	1,352	1,063	828	512	699	2,008
Morrow	118	1,100	1,049	1,251	495	465	771	1,364	1,327
Muskingum	372	597	360	607	480	184	412	800	616
Noble	715	501	365	732	645	28	279	550	876
Ottawa	186	257	355	759	530	213	13	634	927
Paulding	2,423	3,187	4,401	1,700	186	693	522	4,747	3,114
Perry	1,225	2,384	1,148	1,579	907	849	936	1,181	1,484
Pickaway	45	....	....	42	10	3,838	70	355	152
Pike	583	1,525	933	1,402	365	794	85	868	424
Portage	3,540	6,007	9,237	12,327	6,778	2,373	3,578	4,435	3,985
Preble	5	151	54	163	12	54	105	360	518
Putnam	323	602	1,681	1,933	614	644	192	2,162	1,159
Richland	510	1,414	1,773	3,138	2,679	734	902	2,970	618
Ross	223	605	272	1,393	247	706	140	154	238
Sandusky	347	903	453	2,074	1,265	1,583	855	1,385	2,119
Scioto	718	1,445	652	1,723	1,767	1,267	161	866	1,132
Seneca	224	279	479	1,006	465	504	283	1,072	1,263
Shelby	268	3,496	1,357	4,777	2,468	1,728	1,191	1,298	1,457
Stark	701	1,099	1,197	3,329	3,086	690	541	1,316	1,240
Summit	313	937	2,027	3,761	3,100	1,027	1,101	1,129	1,492
Trumbull	5,609	16,693	15,846	24,074	18,546	8,552	5,937	12,119	7,821
Tuscarawas	939	1,568	1,801	4,694	2,171	1,158	2,191	1,718	2,778
Union	205	1,197	935	2,327	68	255	58	1,464	1,075
Van Wert	498	1,357	2,259	795	262	710	292	3,953	2,005
Vinton	587	1,646	805	1,455	1,650	656	388	835	702
Warren	273	195	905	579	56	41	136	163	398
Washington	1,276	2,610	1,537	2,492	1,994	913	1,423	1,638	2,784
Wayne	259	835	1,116	2,662	2,295	630	601	1,536	985

COMPARATIVE TABLE SHOWING PRODUCTION OF BUCKWHEAT IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	2,016	1,779	2,013	1,946	808	948	517	2,011	1,744
Wood	555	1,381	2,823	3,052	806	930	1,762	2,974	2,764
Wyandot	251	420	329	801	300	655	215	1,107	1,064
Total product	173,206	191,684	192,300	310,859	258,024	139,203	123,295	181,339	169,785
Total area	10,408	11,974	14,811	19,932	16,423	12,003	9,876	14,197	12,537

Average area for 9 years, 13,573 acres.
Average product for 9 years, 193,299 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX SEED IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams					7	1			56
Allen			17	185	108	130	207	211	252
Ashland	22,273	15,283	9,015	12,848	23,708	23,859	5,712	3,155	9,801
Ashtabula		1		502	195	71		170	534
Athens									
Auglaize		10	126		257	20		168	837
Belmont									
Brown	27								
Butler	90			500		35	35		40
Carroll					18		28	37	
Champaign			30	60		203	275		1,063
Clark					129	5	384	291	871
Clermont									
Clinton	25						19		
Columbiana							55		44
Coshocton						2			
Crawford	250	862	1,022	2,195	3,965	2,691	1,230	1,406	4,721
Cuyahoga			60	60					
Darke	100	85		188	10	269	343	1,111	6,342
Defiance	138	56		10					
Delaware				90				16	552
Erie						16			621
Fairfield								4	
Fayette			62			12	4		405
Franklin								20	
Fulton	343		10	128	383	176	190	60	217
Gallia			10	.5					
Geauga		90	60	336	653	845	172	99	884
Greene			70	266	261				185
Guernsey	5	4	12	.8		3	7		
Hamilton									
Hancock			92	152	63		25		676
Hardin		5		200	132	235	56	198	153
Harrison						4	1,850		14
Henry	283	10	54	5	38				

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX SEED IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.		
Highland				51					
Hocking				4			31	4	
Holmes						15			
Huron	1,718	2,952	1,965	6,469	8,728	2,974	1,398	[illegible]	[illegible]
Jackson					2				
Jefferson				5	6	106	12	6	[illegible]
Knox				40	4			488	[illegible]
Lake		2,800							
Lawrence									
Licking					6			13	486
Logan	10			250	9	50	48	8	289
Lorain	774	913	1,320	2,148	1,235	600	759	174	1,927
Lucas	500	235	245	90	402	454	115	355	905
Madison									
Mahoning			45	487	332	245	145	202	376
Marion			779	84	40	65	348	264	1,283
Medina	2,719	5,922	4,370	7,611	8,434	6,547	4,164	7,538	17,755
Meigs					1,991		20		18
Mercer	10		13	33				37	612
Miami	204	80	880	275	240	624	320	1,242	3,769
Monroe	7	6	1	36	16	28	4		
Montgomery		125	7	48	190	189		54	1,237
Morgan	19								
Morrow				95	101	95		128	2,842
Muskingum								15	
Noble									
Ottawa								25	
Paulding	7	100	40	95	20	17	15	81	80
Perry						2	27		3
Pickaway									176
Pike									
Portage	90	327	404	633	796	344	249	16	1,961
Preble		225	344	232	491	907	738	1,996	5,805
Putnam		11	2				30		
Richland	1,086	3,012	1,415	4,900	4,797	2,296	378	387	2,423

Ross									
Sandusky						37		2	100
Scioto				28	20				
Seneca		220	80	202	41	202			618
Shelby	84	120	277	111		1,166	166	535	3,378
Stark	5	2	7½	20	66	13	42		
Summit									
Trumbull		319	518	1,792	3,106	2,286	744	986	4,208
Tuscarawas					26	7	9		15
Union			6					55	74
Van Wert	20	60	15		60	60		9	135
Vinton			2	30					
Warren								5	62
Washington			4			4			
Wayne	1,117	2,412	2,261	3,948	5,677	4,824	2,794	2,266	4,162
Williams									
Wood	75	60		150	418	360	105	20	
Wyandot						100			
Total product	31,979	36,307	25,640	47,605	67,223	43,302	23,233	25,003	87,219

Average product for 9 years, 43,057 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF IRISH POTATOES IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	112,681	86,237	44,184	70,573	79,983	63,886	68,125	59,662	136,965
Wood	94,274	104,640	70,222	103,283	86,775	95,878	105,530	82,114	175,748
Wyandot	57,312	67,397	32,361½	80,716	126,330	69,260	42,4[illegible]3	51,303	68,573
Total product	9,203,633	10,097,418	7,286,582	12,906,134	12,557,717	10,069,933	8,436,397	8,839,136	11,793,716
Total area	118,584	118,165	114,832	153,362	253,884	157,923	122,258	118,189	117,242

Average area for 9 years, 141,604 acres.
Average product for 9 years, 10,132,296 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF TOBACCO IN OHIO FOR NINE YEARS.

Counties.	Pounds of Tobacco.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	2,131,862	1,828,170	786,098	1,307,617	917,280	2,859,385	2,233,204	2,886,150	2,782,532
Allen	......	40	520	......	......	......	......	100	......
Ashland	......	1,400	2,995	4,800	5,600	2,500	9,320	12,897	5,787
Ashtabula	......	......	......	......	......	......	......	......	200
Athens	2,600	10,300	3,700	6,010	300	8,800	5,130	20,650	9,200
Auglaize	11,550	30,860	4,100	7,880	6,580	16,600	23,140	16,480	11,560
Belmont	704,452	1,289,763	1,226,297	1,306,728	639,956	892,332	1,552,846	1,142,864	834,501
Brown	4,534,064	3,300,029	2,008,930	2,522,900	2,337,186	3,712,431	3,344,460	3,994,293	4,492,314
Butler	1,029,585	1,035,965	531,662	371,920	468,091	452,305	546,413	799,202	818,516
Carroll	......	......	......	......	......	......	......	......	......
Champaign	55,262	98,080	19,100	16,474	18,400	15,850	16,600	25,805	5,000
Clark	222,335	251,060	150,260	121,737	14,566	145,141	153,035	34,445	135,725
Clermont	2,416,912	1,597,850	991,950	1,301,950	1,316,965	2,165,843	1,716,210	2,209,680	2,103,507
Clinton	74,624	102,546	23,590	76,500	16,500	33,500	4,900	26,850	51,696
Columbiana	......	......	......	......	50	......	......	......	......
Coshocton	......	10	......	......	......	200	......	......	......
Crawford	......	......	......	......	215	......	550	......	......
Cuyahoga	......	......	......	......	......	......	100	250	......
Darke	10,451,175	10,270,356	5,768,440	2,700,049	3,309,618	3,909,870	4,603,765	6,566,057	5,990,050
Defiance	3,950	5,650	3,600	3,400	......	2,850	2,240	2,650	4,300
Delaware	......	100	......	......	......	......	......	191	100
Erie	......	......	80	100	......	......	......	1,300	80
Fairfield	150	......	4	200	800	40	500	100	......
Fayette	......	45	......	30	......	......	......	......	200
Franklin	......	20	......	20	10	......	......	......	......
Fulton	......	......	......	......	......	......	......	......	......
Gallia	721,720	890,582	235,955	475,400	483,643	506,253	586,471	455,725	312,905
Geauga	......	......	24	......	......	75	......	......	......
Greene	489,975	492,439	190,540	79,650	128,810	214,776	131,908	183,926	272,281
Guernsey	99,085	240,461	218,945	252,635	99,087	185,285	161,460	166,704	155,167
Hamilton	189,270	103,422	106,940	174,120	44,599	211,411	226,633	145,058	178,000
Hancock	......	......	25¼	......	35	......	60	......	......
Hardin	......	......	......	......	......	......	......	......	350
Harrison	......	......	......	80	......	4	......	......	......

COMPARATIVE TABLE SHOWING PRODUCTION OF TOBACCO IN OHIO FOR NINE YEARS—Concluded.

Counties.	Pounds of Tobacco.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Henry	100	120	....	....	....	100	150	6,425	500
Highland	33,650	23,270	14,060	9,570	9,000	52,945	60,925	63,100	75,150
Hocking	....	400	120	550	....	250	1,200	....	....
Holmes	....	....	75	....	....	300	1,000	....	8,675
Huron	....	....	....	....	....	....	....	2,530	....
Jackson	....	....	....	....	....	....	....	65	....
Jefferson	7,800	....	....	192	....	....	....	40	....
Knox	....	10	....	....	50	300	....	....	....
Lake	....	....	650	2,000	4,000	3,900	....	52,570	9,900
Lawrence	70,848	40,297	17,800	23,700	40,530	23,775	....	....	22,380
Licking	2,000	....	....	....	142	....	....	....	....
Logan	16,700	66,000	15	31,048	11,755	27,750	19,500	14,000	59,075
Lorain	178	....	....	....	186	....	....	....	....
Lucas	25	300	....	100	....	....	....	....	....
Madison	....	20	....	....	600	600	50	....	....
Mahoning	75,210	....	....	....	....	....	....	....	....
Marion	....	....	100	....	....	....	....	....	....
Medina	223,966	238,440	134,500	110,450	180,627	231,471	270,600	283,266	363,660
Meigs	23,900	1,900	9,330	10,025	5,000	4,050	690	....	....
Mercer	30,600	18,200	1,025	....	....	6,394	1,850	7,495	3,700
Miami	3,640,545	3,056,706	1,964,420	1,126,102	903,259	1,234,815	1,488,893	2,289,255	1,479,835
Monroe	728,515	1,388,350	1,293,479	1,496,205	748,578	1,334,203	1,864,740	1,580,663	1,073,317
Montgomery	13,691,551	12,918,397	7,132,269	5,227,139	5,459,681	6,801,150	5,114,350	10,536,274	8,768,756
Morgan	23,852	101,850	60,270	153,525	93,285	283,090	377,454	275,260	231,645
Morrow	....	....	....	32	....	....	258	....	....
Muskingum	....	13,340	3,800	9,200	2,500	4,000	8,130	4,860	639
Noble	642,144	1,150,675	833,680	1,321,737	601,408	1,163,432	2,534,436	1,141,891	899,572
Ottawa	....	....	....	....	....	....	....	....	....
Paulding	6,950	4,000	800	620	....	4,020	2,775	11,420	8,500
Perry	2,000	7,400	1,500	....	3,000	320	1,285	2,850	405
Pickaway	....	....	....	40	....	....	150	....	....
Pike	26,070	17,443	22,910	27,900	8,100	30,825	21,500	21,825	19,080
Portage	....	3,100	1,000	50	....	....	200	3,800	620

Preble	5,724,404	4,905,356	3,128,000	1,838,148	2,103,300	2,274,123	1,840,017	2,554,326	2,973,224
Putnam	50	597	320	70	....	....	....	100	....
Richland	....	....	....	....	....	....	....	....	....
Ross	....	....	....	5,450	2,300	26,800	18,230	22,130	13,819
Sandusky	....	....	....	....	....	....	....	....	....
Scioto	348,315	283,390	182,275	237,160	77,400	365,887	228,550	127,150	127,855
Seneca	3,600	500	....	....	....	....	75	....	....
Shelby	173,230	165,021	37,968	17,000	10,600	35,800	47,620	66,375	89,357
Stark	1,000	570	4,160	....	950	....	....	9,700	4,441
Summit	....	....	....	....	....	3,600	5,700	5,000	6,350
Trumbull	....	75	....	....	....	....	....	....	250
Tuscarawas	....	....	....	300	....	200	....	....	102
Union	150	....	....	125	125	300	....	....	....
Van Wert	....	....	25	....	....	....	....	2,500	700
Vinton	2,200	1,850	190	25	....	....	....	600	100
Warren	3,446,973	3,217,078	1,796,522	1,506,088	4,244,240	1,819,056	1,591,990	2,216,868	1,912,887
Washington	4,630	54,190	78,934	124,613	72,930	269,119	465,981	308,353	181,364
Wayne	334,710	306,021	248,315	186,825	209,490	235,112	220,750	335,765	262,645
Williams	....	....	....	....	....	....	3,500	2,000	....
Wood	....	150	....	....	....	....	....	....	125
Wyandot	....	....	18	....	....	....	....	....	395
Total product	52,484,457	49,534,158	29,242,225	24,196,189	24,601,327	31,573,098	31,511,464	40,639,833	36,762,994
Total area	56,243	57,659	40,823	34,608	32,856	41,594	50,543	46,986	41,354

Average area for 9 years, 44,741 acres.
Average product for 9 years, 35,616,194 pounds.

COMPARATIVE TABLE SHOWING PRODUCTION OF BUCKWHEAT IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	40	99	158	42	13	4	64	93	123
Allen	115	221	188	602	41	235	246	1,265	1,598
Ashland	252	747	2,432	4,508	2,501	815	938	2,744	1,837
Ashtabula	33,974	65,137	55,960	71,929	89,775	49,181	35,571	38,476	27,607
Athens	65	....	346	506	280	279	236	444	748
Auglaize	230	319	1,022	4,909	1,222	1,412	1,442	2,605	2,633
Belmont	1,344	1,951	1,234	2,017	1,266	248	1,142	369	1,535
Brown	35	196	156	87	....	20	40	121	230
Butler	....	....	56	1,097	14	203	128	26	402
Carroll	440	1,872	821	3,071	2,936	551	1,233	1,343	1,444
Champaign	67	809	870	1,171	989	1,340	979	292	1,235
Clark	56	90	172	196	147	244	569	88	508
Clermont	153	462	200	231	169	53	324	217	478
Clinton	208	148	325	935	237	128	72	479	698
Columbiana	988	2,165	2,058	5,019	6,952	1,722	1,875	2,309	2,265
Coshocton	1,156	1,911	1,444	6,025	4,457	1,075	1,605	1,830	1,631
Crawford	163	701	1,090	2,241	904	1,152	923	1,434	461
Cuyahoga	221	84	279	315	1,276	321	81	498	195
Darke	534	847	1,354	2,228	820	331	198	1,502	1,781
Defiance	2,817	1,915	2,812	2,166	284	1,965	898	2,322	4,389
Delaware	383	921	975	1,426	265	516	1,167	1,618	1,476
Erie	2,428	3,482	4,582	11,342	4,673	4,261	3,084	6,548	5,741
Fairfield	147	676	182	762	828	150	68	188	211
Fayette	....	25	47	385	....	320	25	53	122
Franklin	159	801	1,946	2,469	323	927	829	1,658	1,660
Fulton	7,341	5,491	7,208	8,119	4,300	7,408	5,722	5,888	8,782
Gallia	68	119	200	272	64	167	71	335	549
Geauga	1,575	5,028	5,487	6,988	5,975	2,409	2,955	6,452	3,912
Greene	121	129	176	468	50	5	46	92	114
Guernsey	1,097	1,617	1,738	2,880	872	885	7,489	1,217	2,032
Hamilton	15	176	60	674	30	....	40	494	251
Hancock	168	413	1,049	1,009	449	695	509	1,444	3,156
Hardin	29,358	314	658	1,330	550	1,563	922	1,480	1,840
Harrison	84	570	241	1,118	983	485	315	480	670
Henry	2,862	3,567	3,627	3,131	28,426	2,254	1,308	2,001	2,915

Highland	189	197	141	508	85	108	102	135	144
Hocking	1,792	2,137	1,127	2,830	3,623	1,303	622	1,200	1,113
Holmes	200	762	1,032	4,256	3,727	836	943	1,970	1,833
Huron	719	1,956	3,182	4,465	2,437	1,714	838	2,949	3,657
Jackson	1,509	2,254	1,823	1,129	658	206	249	872	385
Jefferson	128	760	303	997	972	429	288	503	496
Knox	347	1,043	1,634	10,182	3,510	583	1,138	2,516	1,845
Lake	1,263	955	917	2,895	3,086	2,138	741	879	1,569
Lawrence	13	93	119	307	161	50	29	111	....
Licking	1,380	3,059	2,904	9,928	1,396	900	1,334	2,302	1,082
Logan	124	813	1,370	2,385	1,287	1,210	331	1,351	927
Lorain	190	333	561	1,092	675	838	691	1,373	188
Lucas	13,260	8,327	10,232	10,028	6,799	7,393	4,812	5,196	9,786
Madison	61	54	62	278	37	185	133	192	399
Mahoning	1,628	1,713	2,559	5,135	2,674	1,319	8,233	4,534	2,547
Marion	102	543	325	343	434	179	379	912	1,429
Medina	30,370	1,050	1,226	4,439	952	373	644	861	1,169
Meigs	107	321	233	242	142	41	492	200	376
Mercer	139	389	754	1,909	238	296	174	4,323	1,211
Miami	55	57	25	261	55	26	242	337	627
Monroe	4,392	4,675	1,918	5,475	6,688	1,134	1,423	2,256	3,497
Montgomery	36	146	20	180	190	48	129	69	98
Morgan	631	874	518	1,352	1,063	828	512	699	2,008
Morrow	118	1,100	1,049	1,251	495	465	771	1,364	1,327
Muskingum	372	597	360	607	480	184	412	800	616
Noble	715	501	365	732	645	28	279	550	876
Ottawa	186	257	355	759	530	213	13	634	927
Paulding	2,423	3,187	4,401	1,700	186	693	522	4,747	3,114
Perry	1,225	2,384	1,148	1,579	907	849	936	1,181	1,484
Pickaway	45	....	....	42	10	3,838	70	355	152
Pike	583	1,525	933	1,402	365	794	85	868	424
Portage	3,540	6,007	9,237	12,327	6,778	2,373	3,578	4,435	3,985
Preble	5	151	54	163	12	54	105	360	518
Putnam	323	602	1,681	1,933	614	644	192	2,162	1,159
Richland	510	1,414	1,773	3,138	2,679	734	902	2,970	618
Ross	223	605	272	1,393	247	706	140	154	238
Sandusky	347	903	453	2,074	1,265	1,583	855	1,385	2,119
Scioto	718	1,445	652	1,723	1,767	1,267	161	866	1,132
Seneca	224	279	479	1,006	465	504	283	1,072	1,263
Shelby	268	3,496	1,357	4,777	2,468	1,728	1,191	1,298	1,457
Stark	701	1,099	1,197	3,329	3,086	690	541	1,316	1,240
Summit	313	937	2,027	3,761	3,100	1,027	1,101	1,129	1,492
Trumbull	5,609	16,693	15,846	24,074	18,546	8,552	5,937	12,119	7,821
Tuscarawas	939	1,568	1,801	4,694	2,171	1,158	2,191	1,718	2,778
Union	205	1,197	935	2,327	68	255	58	1,464	1,075
Van Wert	498	1,357	2,259	795	262	710	292	3,953	2,005
Vinton	587	1,646	805	1,455	1,650	656	388	835	702
Warren	273	195	905	579	56	41	136	163	398
Washington	1,276	2,610	1,537	2,492	1,994	913	1,423	1,638	2,784
Wayne	259	835	1,116	2,662	2,295	630	601	1,536	985

COMPARATIVE TABLE SHOWING PRODUCTION OF BUCKWHEAT IN OHIO FOR NINE YEARS—Concluded.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Williams	2,016	1,779	2,013	1,946	808	948	517	2,011	1,744
Wood	555	1,381	2,823	3,052	806	930	1,762	2,974	2,764
Wyandot	251	420	329	801	300	655	215	1,107	1,064
Total product	173,206	191,684	192,300	310,859	258,024	139,203	123,295	181,339	169,785
Total area	10,408	11,974	14,811	19,932	16,423	12,003	9,876	14,197	12,537

Average area for 9 years, 13,573 acres.
Average product for 9 years, 193,299 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX SEED IN OHIO FOR NINE YEARS.

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams					7	1			56
Allen			17	185	108	130	207	211	252
Ashland	22,273	15,283	9,015	12,848	23,708	23,869	5,712	3,155	9,801
Ashtabula		1		502	195	71		170	534
Athens									
Auglaize		10	126		257	20		168	887
Belmont									
Brown	27								
Butler	90			500		35	35		40
Carroll					18		28	37	
Champaign			30	60		208	275		1,063
Clark					129	5	384	291	371
Clermont									
Clinton	25						19		
Columbiana							55		44
Coshocton						2			
Crawford	250	862	1,022	2,195	3,965	2,691	1,230	1,406	4,721
Cuyahoga			60	60					
Darke	100	85		188	10	269	843	1,111	6,342
Defiance	138	56		10					
Delaware				90				16	552
Erie						16			621
Fairfield								4	
Fayette			62			12	4		406
Franklin								20	
Fulton	343		10	128	385	176	190	60	217
Gallia			10	5					
Geauga		90	60	336	653	845	172	99	884
Greene			70	266	261				185
Guernsey	5	4	12	8		3	7		
Hamilton									
Hancock			92	152	63		25		676
Hardin		5		200	132	235	56	198	153
Harrison						4	1,850		14
Henry	283	10	54	5	38				

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX SEED IN OHIO FOR NINE YEARS—Concluded

Counties.	Number of Bushels.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Highland				51					
Hocking				4			31	4	
Holmes						15			19
Huron	1,718	2,952	1,965	6,469	8,728	2,974	1,398	1,151	3,038
Jackson					2				
Jefferson				5	6	106	12	6	10
Knox				40	4			488	1,654
Lake		2,800							
Lawrence									
Licking					6			13	486
Logan	10			250	9	50	48	8	280
Lorain	771	913	1,320	2,148	1,235	600	739	174	1,927
Lucas	500	235	245	90	402	454	115	355	905
Madison									
Mahoning			45	487	332	245	145	202	376
Marion			779	84	40	65	348	264	1,383
Medina	2,719	5,922	4,370	7,611	8,434	6,547	4,164	7,538	17,755
Meigs					1,991		20		18
Mercer	10		13	33				37	612
Miami	204	80	880	275	240	624	320	1,242	3,769
Monroe	7	6	1	36	16	28	4		
Montgomery		125	7	48	190	189		54	1,237
Morgan	19								
Morrow				95	101	95		128	2,842
Muskingum								15	
Noble									
Ottawa								25	
Paulding	7	100	40	95	20	17	15	81	80
Perry						2	27		3
Pickaway									176
Pike									
Portage	90	327	404	633	796	344	249	16	1,961
Preble		225	344	232	491	907	738	1,996	5,805
Putnam		11	2				30		
Richland	1,086	3,012	1,415	4,900	4,797	2,296	378	387	2,423

Ross									
Sandusky						37		2	100
Scioto				28	20				
Seneca		220	80	202	41	202			618
Shelby	84	120	277	111		1,166	166	535	3,378
Stark	5	2	7½	20	66	13	42		
Summit									
Trumbull		319	518	1,792	3,106	2,286	744	986	4,208
Tuscarawas					26	7	9		15
Union			6					55	74
Van Wert	20	60	15		60	60		9	135
Vinton			2	30					
Warren								5	62
Washington			4			4			
Wayne	1,117	2,412	2,261	3,948	5,677	4,824	2,794	2,266	4,162
Williams									
Wood	75	60		150	418	360	105	20	
Wyandot						100			
Total product	31,979	36,307	25,640	47,605	67,223	43,302	23,233	25,003	87,219

Average product for 9 years, 43,057 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX IN OHIO FOR NINE YEARS.

Counties.	Pounds of Fiber.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Allen								9	
Ashland	1,365,500	766,360	552,500	986,550	838,407	1,464,600	607,600	204,300	516,800
Ashtabula				3,300				2,000	14,000
Athens								4,000	27,500
Carroll							1,000		
Champaign									10,000
Clark							15,000	8,500	12,000
Crawford	400	18	5	8,000	70,000		16,000	13,780	87,540
Darke						5,700		46,000	77,100
Delaware									6
Erie									1,606
Fairfield								4	80,000
Fayette		14							
Geauga				5,006	21,930	41,000	4,000	80,000	18,000
Greene					6,000				6,000
Huron	237,300	121,400	90,115	250,680	502,804	154,208	135,800	65,200	139,160
Knox		30							125
Lake		320							
Lawrence									323
Licking								43	
Lorain	31,875	16,500	59,010	41,500	45,000	21,700	18,900	6,000	72,600
Lucas		10			158				350
Mahoning				7,000	6		4,000	8,000	13,000
Marion								128	23,600
Medina	55,400	63,019	37,514	121,200	232,300	324,900	196,300	266,040	667,800
Mercer									6,000
Miami	1,006	6	84,800	22,000	3,000	21,400	20,100	54,003	226,700
Montgomery				100		9,000			79,104
Morrow							10		104
Portage	4,000	11,087	29,500	56,400	25,000	19,800	6,000	710	63,600
Preble						10,000	6,001	34,300	30,070
Putnam	400	50							
Richland	56,800	43,000	42,650	275,400	215,100	93,000	3,112	5,000	71,700
Sandusky									10,080

Seneca	....	....	....	10	435	....	....	....	....
Shelby	....	6,000	1,603	....	....	15,000	16,820	9,500	132,900
Stark	....	....	4	....	....	....	6,000	....	....
Trumbull	....	....	19,000	165,700	102,235	108,300	30,500	15,600	225,580
Wayne	36,100	135,370	126,600	275,300	258,560	657,800	168,100	227,139	84,900
Totals	1,838,781	1,163,184	1,013,301	2,218,146	2,320,935	2,946,408	1,255,243	1,050,247	2,698,108

Average product for 9 years, 1,833,817 pounds.

COMPARATIVE TABLE SHOWING PRODUCTION OF BROOM CORN IN OHIO FOR NINE YEARS.

Counties.	Pounds of Broom Brush.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	1,800	....	2,387	500	600	300	1,000	2,125	837
Allen	....	30	....	....	....	50	....	800	....
Ashland	800	800	400	3,110	3,900	1,800	....	2,323	6,420
Ashtabula	....	....	....	....	450	....	1,000	1,000	22
Athens	....	....	....	....	....	....	....	200	....
Auglaize	86,110	100,700	162,000	90,100	248,020	175,750	121,900	34,700	30,100
Belmont	2,000	2,000	2,320	5,008	4,320	2,468	670	2,200	....
Brown	300	2,714	2,693	550	3,300	2,380	825	800	1,200
Butler	6,000	7,500	13,800	33,000	20,500	24,400	37,200	36,250	68,500
Carroll	....	....	....	....	....	....	....	....	....
Champaign	345,305	47,500	21,650	....	7,600	82,350	52,000	86,332	52,900
Clark	900	....	....	....	....	....	....	500	3,400
Clermont	....	....	....	....	2,000	4,350	21,400	1,700	500
Clinton	150	....	1,610	....	400	1,000	2,300	1,565	....
Columbiana	100	....	800	350	247	....	....	600	450
Coshocton	50	....	....	....	30	....	50	2,680	....
Crawford	....	....	1,000	....	....	....	....	700	4,600
Cuyahoga	....	....	....	....	....	....	120	....	....
Darke	39,150	41,360	3,650	17,022	36,520	58,210	22,100	28,300	18,465
Defiance	....	....	3,200	200	....	....	....	....	....
Delaware	....	3,000	....	....	....	2,300	1,000	17,600	1,075
Erie	....	....	4,000	10,600	2,000	13,000	....	....	3,000
Fairfield	700	....	350	145,250	801	1,100	9,700	6,900	750
Fayette	3	8,000	6,000	300	4,200	18,000	9,000	12,855	26,500
Franklin	6,950	39,820	4,550	6,000	4,500	28,550	43,400	29,300	24,800
Fulton	11,400	500	1,700	2,000	....	....	1,200	1,800	2,250
Gallia	5,495	4,600	....	3,600	....	135	....	....	....
Geauga	....	....	....	1,400	....	....	....	....	82
Greene	700	....	500	4,000	....	8,000	8,200	9,900	3,000
Guernsey	630	175	800	....	....	....	....	140	....
Hamilton	18,000	82	....	1,300	12,800	7,000	5,089	10,424	1,055
Hancock	88	....	520	3,000	....	....	....	2,260	....
Hardin	....	....	1,000	310	200	22,000	2,700	16,060	40,000
Harrison	....	....	....	....	100	....	....	....	25

Henry	1,200	1,000	4,000	4,550					3,000
Highland	3,110	200	8,000		900	2,600	465	11,200	10,500
Hocking	2,400	1,000	2,090	450	3,400	2,800	300		
Holmes	10	600	2,000		400	2,100			2,261
Huron						1,200	600	900	18,000
Jackson									
Jefferson						2,209	510	370	
Knox					1,910				1,900
Lake					4,000				
Lawrence			3,700	2,427	3,000	1,500	800		
Licking	12,800	2,500	3,150	8,010	2,500	5,200	11,500		
Logan					27,000	22,600		1,400	300
Lorain			3,809		2,400			800	
Lucas				5,000		1,500			150
Madison					2,000		1,600	1,500	
Mahoning	15	60					36	300	1,000
Marion	14,550			5,639				75	
Medina					1,400				1,560
Meigs	276		1,400	1,045	5,930		1,850	8,600	6,000
Mercer	1,080	80	2,100	3,000	14,200	6,000	2,300	70	
Miami	10,630	6,009	4,000		3,625	14,500	6,300	14,000	6,130
Monroe	472	345	25	145,400	50	100		160	
Montgomery	44,900	21,500	1,400		25,600	33,000	23,970	3,150	4,640
Morgan	260	1,450	310		540	35	171	240	100
Morrow						1,550		118	
Muskingum	60		300	500	100				23
Noble		900	2,000		502	471		1,200	300
Ottawa									
Paulding	400	400							
Perry			900			75	154		2,000
Pickaway					66,000	64,006	85,200	125,000	
Pike		1,000	2,000	300	200	2,000	1,000		800
Portage			700		200		400		
Preble	3,180	2,000	4,820	67,000	9,300	3,842	10,050	26,800	16,000
Putnam	20	36,000	15,000	700	500	40			
Richland		100	700	1,460		5,675	2,600		380
Ross	8,400	500	3,000			200	306	2,000	
Sandusky					109			1,200	1,500
Scioto	280	290	2,070	1,000	3,944			45	500
Seneca				700			125		
Shelby	11,000	4,000	4,460	7,200		99	5,100	800	1,700
Stark	3,832	50				800	1,000	170	116
Summit	250					1,200		45	
Trumbull	1,000						50		
Tuscarawas	664	2,000	8,000	3,090	1,500		130	430	
Union	5,055	2,000	2,500	7,850	5,600	2,354		3,700	2,000
Van Wert	8,000				250				1,600
Vinton			100			1,150		18	
Warren	3,600			1,000					8,754
Washington	1,000	600				200			

COMPARATIVE TABLE SHOWING PRODUCTION OF BROOM CORN IN OHIO FOR NINE YEARS—Concluded.

Counties.	Pounds of Broom Brush.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Wayne	400	......	......	50	1,755	1,105	20	22,420	1,168
Williams	2,000	......	......	......	400	1,800	......	450	4,500
Wood	......	......	......	......	1,500	......	160	......	......
Wyandot	2,000	900	......	......	......	......	......	1,300	65
Total product	669,475	344,166	317,404	593,971	543,203	637,248	497,551	538,474	386,878
Total area	907	748	781	979	1,053	1,125	1,582	1,081	763

Average area for 9 years, 1,002 acres.
Average product for 9 years, 503,152 pounds.

COMPARATIVE TABLE SHOWING USE OF COMMERCIAL FERTILIZERS FOR SEVEN YEARS.

Counties.	Pounds used.						
	1899.	1898.	1897.	1896.	1895.	1894.	1893.
Adams	3,574,714	3,026,600	2,268,462	2,101,680	2,381,250	2,569,700	2,785,820
Allen	443,040	150,190	104,924	180,475	369,900	273,100	146,140
Ashland	2,697,880	2,657,880	2,095,100	1,382,973	1,751,900	1,401,600	1,163,585
Ashtabula	4,290,050	4,290,760	3,999,040	3,468,633	4,668,200	3,690,504	3,343,866
Athens	1,790,700	1,844,100	1,609,405	1,414,960	1,709,990	1,104,640	1,291,083
Auglaize	394,450	83,100	58,600	25,500	19,800	4,100	....
Belmont	1,913,426	1,726,742	2,140,275	1,777,607	1,623,377	1,082,648	1,168,036
Brown	4,079,375	3,640,480	1,218,577	1,038,700	1,671,600	1,839,765	1,481,161
Butler	1,064,300	493,840	214,100	143,250	145,450	186,625	120,690
Carroll	1,678,730	1,899,281	1,703,125	1,213,670	1,053,103	852,648	819,830
Champaign	2,691,482	1,410,980	841,820	788,630	1,354,070	694,750	744,540
Clark	1,341,070	1,034,668	646,800	396,708	578,500	246,016	178,450
Clermont	1,205,660	1,032,190	753,600	649,525	1,122,980	995,718	975,583
Clinton	1,514,200	810,263	665,048	336,560	795,230	420,000	727,011
Columbiana	3,982,220	3,399,088	3,255,009	2,763,300	2,563,700	2,183,950	2,258,595
Coshocton	1,891,700	1,461,990	1,163,050	827,454	1,286,006	760,186	747,825
Crawford	1,511,020	1,327,400	1,067,488	711,020	1,116,918	707,600	528,610
Cuyahoga	4,470,300	3,610,600	2,984,390	3,539,340	3,351,100	3,974,950	3,743,950
Darke	1,997,157	914,138	694,410	582,515	926,900	587,980	415,980
Defiance	67,200	75,300	57,450	32,000	46,500	45,320	19,000
Delaware	1,189,350	788,100	237,456	295,000	665,680	407,430	399,459
Erie	1,460,350	903,870	674,760	683,290	536,501	344,500	430,424
Fairfield	4,186,150	2,755,650	1,885,490	1,408,600	2,503,250	1,394,252	1,257,030
Fayette	1,829,450	1,573,471	782,171	596,436	745,700	406,800	316,064
Franklin	723,500	296,350	200,701	252,750	621,375	273,816	278,450
Fulton	125,380	151,250	104,900	28,900	86,100	102,750	96,150
Gallia	2,318,660	2,341,521	2,479,963	1,750,005	1,654,000	1,298,476	1,435,245
Geauga	2,626,425	2,391,347	2,313,150	1,882,823	2,293,515	1,951,406	1,944,155
Greene	859,250	529,400	261,940	123,300	575,900	332,620	304,800
Guernsey	2,039,340	2,136,725	1,789,000	1,402,200	1,681,505	987,435	1,064,792
Hamilton	....	....	....	....	....	....	....
Hancock	738,800	494,000	231,350	263,555	449,340	213,400	189,750
Hardin	279,300	146,900	34,850	100,200	175,900	65,400	23,700
Harrison	897,780	810,421	1,316,690	726,105	737,638	487,350	455,650
Henry	72,240	70,100	40,300	26,900	45,600	8,350	32,172

COMPARATIVE TABLE SHOWING USE OF COMMERCIAL FERTILIZERS FOR SEVEN YEARS—Concluded.

Counties.	Pounds used.						
	1899.	1898.	1897.	1896.	1895.	1894.	1893.
Highland	3,300,780	3,848,215	3,251,640	2,397,020	3,149,260	2,011,750	2,036,730
Hocking	2,357,840	2,356,851	2,027,768	2,002,923	1,622,515	1,402,640	1,398,065
Holmes	1,702,830	2,120,800	1,388,720	1,210,950	1,408,280	667,224	924,022
Huron	4,068,079	2,868,650	2,794,010	2,014,068	2,735,670	1,939,160	1,862,865
Jackson	2,390,320	1,857,810	1,934,568	1,484,910	2,086,300	1,469,915	1,308,360
Jefferson	1,151,650	1,422,910	1,447 120	1,221,682	1,601,339	899,400	902,790
Knox	3,224,630	2,402,450	1,867,825	1,405,140	2,110,898	2,041,318	1,334,675
Lake	1,743,790	1,117,600	550,429	681,700	966,400	1,066,800	1,025,100
Lawrence	554,190	415,800	205,350	211,125	162,995	85,600	124,150
Licking	3,853,490	2,297,390	1,346,860	1,104,810	2,013,290	977,150	1,125,827
Logan	1,215,956	382,200	192,890	161,300	160,200	217,750	75,300
Lorain	2,192,506	3,074,430	2,517,699	1,740,420	2,384,951	1,380,519	1,424,040
Lucas	250,510	147,500	81,400	118,700	192,900	178,150	138,800
Madison	173,945	60,600	8,000	....	44,000	1,000	33,600
Mahoning	2,574,465	3,673,980	3,992,194	2,965,486	4,172,897	2,543,729	2,339,422
Marion	331,100	257,900	81,700	96,910	114,012	16,100	22,700
Medina	669,380	5,267,500	4,399,290	3,257,420	4,417,645	3,062,000	3,260,937
Meigs	2,762,590	2,931,254	2,378,017	1,955,889	2,407,860	1,525,990	1,809,080
Mercer	178,150	102,100	68,100	8,500	26,900	5,100	7,500
Miami	2,298,280	1,310,426	696,650	672,460	661,043	397,160	367,500
Monroe	4,850,551	2,321,430	1,890,260	1,585,502	1,540,260	1,053,431	1,080,584
Montgomery	3,326,597	2,391,778	2,175,490	1,437,850	1,525,930	997,010	1,189,540
Morgan	2,368,800	2,304,923	2,370,650	1,942,650	2,432,358	1,743,561	1,531,670
Morrow	2,745,410	2,323,896	1,811,375	856,191	1,669,270	947,100	872,710
Muskingum	3,513,910	2,832,165	3,258,748	2,648,795	2,892,991	1,502,046	1,714,000
Noble	1,259,315	1,067,016	1,000,100	1,090,089	1,186,620	470,310	476,980
Ottawa	5,700	1,400	7,400	600	6,800	2,500	7,000
Paulding	1,700	14,243	1,700	4,920	5,300	....	5,800
Perry	3,835,460	3,650,810	3,437,359	2,751,630	3,033,918	2,115,580	2,014,200
Pickaway	2,244,200	587,913	452,700	543,050	378,500	184,044	258,200
Pike	2,773,350	2,680,680	1,917,743	1,771,050	1,522,140	1,547,080	1,431,400
Portage	3,636,760	3,451,854	3,698,352	3,208,740	3,476,300	2,778,452	2,435,954
Preble	5,992,850	4,131,015	3,406,290	3,581,750	3,943,100	3,285,450	3,079,140
Putnam	2,800	6,000	2,600	....	5,000	2,900	....
Richland	3,540,495	3,341,551	2,745,460	1,748,700	2,775,207	1,285,430	1,232,390

Ross	3,608,580	2,156,360	1,335,642	1,352,850	1,608,255	1,504,360	1,098,403
Sandusky	658,700	434,100	284,400	272,085	181,226	121,550	176,750
Scioto	3,033,800	1,984,505	1,526,890	1,913,312	1,607,544	1,319,295	1,674,125
Seneca	3,606,934	2,390,500	1,900,840	1,458,930	2,623,150	969,900	1,232,830
Shelby	1,476,300	582,510	361,570	533,670	731,750	221,950	71,300
Stark	3,253,025	3,535,770	2,268,469	2,157,900	2,695,854	1,913,388	1,722,310
Summit	3,445,990	2,781,627	2,337,740	1,613,981	165,105	1,302,750	1,231,800
Trumbull	3,251,152	3,320,628	2,915,942	2,427,010	3,533,860	2,802,490	2,636,404
Tuscarawas	1,706,576	1,573,450	1,299,200	1,054,430	1,117,375	755,485	666,055
Union	579,575	168,350	62,900	84,050	153,900	339,600	69,700
Van Wert	....	1,000	1,000	....	600	1,000	2,000
Vinton	1,997,590	1,964,350	1,407,600	1,294,950	1,589,939	1,152,383	1,178,276
Warren	953,600	870,900	562,750	392,150	337,200	653,300	706,050
Washington	5,170,510	4,617,730	3,375,175	3,294,850	4,260,500	3,025,166	2,861,420
Wayne	5,516,148	4,503,060	3,560,698	3,152,538	4,128,876	2,752,086	2,974,750
Williams	225,000	175,550	63,300	116,700	235,340	52,200	36,350
Wood	725,940	518,300	453,400	319,300	333,380	525,700	234,560
Wyandot	710,500	574,750	217,516	153,700	348,480	180,000	128,200
Total product	178,926,948	152,190,375	123,146,474	102,383,910	126,297,999	91,290,340	88,279,477
Total cost	$2,299,136	$1,543,915	$1,481,583	$1,168,657	$1,529,088	$1,162,981	$1,180,448

Average number of pounds for 7 years, 123,216,508 pounds.
Average cost for 7 years, $1,480,830.

COMPARATIVE TABLE SHOWING PRODUCTION OF WOOL IN OHIO FOR NINE YEARS.

Counties.	Pounds shorn.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	43,672	49,291	39,021	37,878	60,870	65,518	60,442	61,786	58,525
Allen	104,950	101,433	77,012	76,141	93,728	130,117	130,849	127,609	118,725
Ashland	245,615	312,500	169,597	203,188	189,455	218,276	231,198	277,685	[illegible]
Ashtabula	86,941	95,031	90,381	77,075	11,799	109,793	120,659	120,239	138,622
Athens	271,610	244,080	196,726	215,524	292,028	361,205	371,618	447,861	448,202
Auglaize	54,598	58,756	49,405	53,362	68,827	85,365	65,622	71,629	63,257
Belmont	426,580	387,709	348,934	359,787	452,450	553,076	556,100	648,155	660,028
Brown	60,240	53,060	49,705	41,270	58,635	59,686	51,855	48,817	44,119
Butler	36,797	37,791	25,832	25,615	37,997	40,128	46,805	38,027	32,327
Carroll	343,829	324,576	326,937	314,263	380,926	466,152	474,380	552,210	557,814
Champaign	126,343	126,897	128,211	104,085	194,617	171,499	175,776	142,139	131,473
Clark	99,718	153,424	120,487	142,509	205,345	202,824	257,072	290,786	268,103
Clermont	26,691	33,582	25,554	24,811	27,456	31,110	25,183	21,087	33,892
Clinton	122,750	132,597	97,317	115,515	4,615	154,632	143,152	130,413	128,366
Columbiana	181,462	176,251	155,067	170,504	201,560	275,916	280,574	334,511	384,818
Coshocton	428,255	352,528	404,367	463,164	523,410	580,978	636,198	646,764	669,280
Crawford	177,393	220,367	199,646	201,365	220,954	223,891	230,871	248,263	271,526
Cuyahoga	30,982	31,282	29,773	27,188	31,680	34,233	43,295	50,098	48,876
Darke	59,960	38,301	28,031	24,013	36,032	49,762	40,375	42,720	27,626
Defiance	76,257	74,626	62,783	71,401	72,826	81,042	76,812	68,614	71,698
Delaware	252,780	221,301	186,144	210,081	262,103	323,285	245,081	400,871	401,929
Erie	69,572	63,289	59,675	65,514	75,952	75,379	102,522	104,670	130,728
Fairfield	87,511	91,616	56,250	58,098	81,434	132,584	144,093	109,837	160,193
Fayette	33,199	37,537	49,655	44,315	69,980	81,906	106,328	85,188	71,728
Franklin	52,330	57,571	46,748	44,271	54,448	55,828	66,803	79,684	72,306
Fulton	102,542	127,934	110,902	96,385	96,278	154,899	186,085	194,930	202,507
Gallia	61,700	72,843	76,464	61,945	74,951	90,473	86,914	87,569	77,028
Geauga	63,852	82,311	71,056	66,335	73,155	95,647	89,524	97,736	96,163
Greene	107,164	94,138	99,516	91,028	131,087	126,163	94,759	144,737	122,263
Guernsey	432,097	398,901	355,240	378,170	439,496	540,090	568,605	642,249	646,077
Hamilton	3,379	6,024	6,272	....	6,938	8,727	11,949	11,706	10,239
Hancock	192,938	194,200	171,988	155,955	201,755	219,393	224,107	231,039	249,301
Hardin	140,341	155,790	45,158	154,248	173,476	210,119	169,343	212,230	225,179
Harrison	540,864	580,209	562,095	539,373	676,295	812,750	814,892	912,442	874,018
Henry	44,841	49,356	41,028	36,505	52,332	96,426	59,769	64,663	56,457

Highland	110,726	109,426	84,265	87,176	114,380	126,252	118,008	101,814	93,597
Hocking	87,109	86,158	83,317	97,560	102,325	141,620	135,023	157,245	162,051
Holmes	123,153	142,832	118,686	148,219	148,645	183,859	189,520	198,379	228,399
Huron	354,720	283,336	284,424	275,803	297,408	334,188	343,096	404,463	417,970
Jackson	41,820	41,888	44,014	61,257	65,153	70,813	62,654	62,924	58,630
Jefferson	335,548	314,497	310,654	290,035	354,508	432,182	431,910	484,988	518,275
Knox	503,681	498,445	457,119	460,255	529,881	574,810	621,218	682,698	721,905
Lake	25,981	24,688	32,918	38,138	38,457	48,248	39,226	58,429	59,046
Lawrence	5,681	11,848	10,165	11,131	12,085	20,809	16,804	11,651	12,243
Licking	534,616	543,343	470,768	527,657	584,445	702,301	759,898	893,405	949,480
Logan	206,580	176,567	237,135	155,657	200,477	250,431	299,071	280,521	274,522
Lorain	118,142	118,695	115,431	125,062	126,229	159,756	157,368	199,888	197,912
Lucas	15,618	13,416	14,290	12,426	16,651	18,981	21,881	27,436	28,327
Madison	100,981	150,909	164,085	144,390	189,896	213,181	265,499	253,709	304,955
Mahoning	115,545	132,601	133,375	145,645	218,210	224,929	226,576	215,037	255,831
Marion	300,818	360,904	317,326	328,133	340,669	391,407	341,086	400,799	385,277
Medina	181,775	180,121	170,083	159,538	192,333	217,140	210,147	318,816	273,879
Meigs	143,300	143,743	132,118	137,653	216,315	239,055	213,029	248,028	258,507
Mercer	58,840	62,504	48,882	38,049	49,194	70,037	70,029	57,053	45,170
Miami	18,179	20,255	19,570	19,488	21,750	28,572	31,708	36,983	30,508
Monroe	94,018	92,446	70,686	71,673	108,718	155,480	179,735	184,675	188,016
Montgomery	11,711	15,400	11,713	7,916	13,033	19,060	22,675	16,272	19,418
Morgan	380,376	339,835	312,424	334,887	435,234	506,300	511,130	545,856	522,977
Morrow	370,108	348,115	341,632	322,291	368,913	452,859	472,037	549,181	548,073
Muskingum	458,708	450,004	441,585	472,490	540,753	567,953	588,831	640,590	595,996
Noble	302,211	258,796	232,378	243,588	343,803	424,738	384,021	475,456	484,336
Ottawa	25,935	28,259	27,160	27,860	33,038	36,344	38,143	68,725	49,506
Paulding	35,963	35,192	24,015	19,153	29,651	29,368	30,021	26,821	21,082
Perry	144,170	143,651	131,731	156,250	196,777	224,612	204,636	249,513	267,298
Pickaway	59,604	35,951	38,315	45,628	71,549	....	63,447	47,791	44,372
Pike	16,311	20,547	21,761	22,435	27,616	32,038	28,840	23,034	24,383
Portage	126,665	122,835	118,615	120,350	155,640	182,617	178,005	223,077	222,695
Preble	34,675	39,887	31,584	33,159	35,359	44,431	39,167	42,335	35,342
Putnam	43,257	53,571	49,363	34,845	55,330	61,903	56,546	79,307	90,578
Richland	192,336	218,367	164,947	163,781	215,003	230,000	251,568	282,856	239,520
Ross	67,999	55,115	53,111	46,679	68,542	63,811	68,282	73,696	75,040
Sandusky	82,044	83,572	85,016	65,936	105,736	117,395	84,235	107,390	136,646
Scioto	5,554	5,768	5,508	6,297	8,654	7,776	5,652	5,847	10,504
Seneca	177,127	174,341	145,419	162,462	204,117	202,496	211,600	238,177	246,735
Shelby	40,480	36,368	29,130	28,905	47,185	33,822	39,311	35,109	35,717
Stark	124,765	136,455	112,335	130,354	158,771	194,159	185,899	207,773	205,608
Summit	40,961	48,618	44,759	41,179	59,435	65,306	66,760	78,970	75,382
Trumbull	134,121	143,291	135,160	140,458	179,270	211,540	212,160	241,348	239,282
Tuscarawas	155,420	151,658	142,789	151,606	202,810	262,672	272,365	316,990	298,704
Union	252,370	203,216	194,238	190,750	234,934	273,134	315,100	283,322	338,504
Van Wert	61,674	74,896	50,665	43,495	74,037	56,585	62,104	56,653	48,155
Vinton	80,062	104,481	98,716	110,548	136,158	150,964	38,360	145,997	149,013
Warren	64,112	70,676	59,385	61,164	69,788	68,108	82,132	69,874	63,193
Washington	198,705	199,010	183,583	296,001	267,207	349,423	327,404	362,268	392,812

COMPARATIVE TABLE SHOWING PRODUCTION OF WOOL IN OHIO FOR NINE YEARS.

Counties.	Pounds shorn.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	43,672	49,291	39,021	37,878	60,870	65,518	60,442	61,786	58,525
Allen	104,950	101,433	77,012	76,141	93,728	130,117	130,849	127,609	118,725
Ashland	245,615	312,500	169,597	203,188	189,455	218,276	231,198	277,685	283,416
Ashtabula	86,941	95,031	90,381	77,075	11,799	169,793	120,659	120,209	138,622
Athens	271,610	244,080	196,726	215,524	292,028	361,205	371,618	447,861	448,202
Auglaize	54,598	58,756	49,405	53,362	68,827	85,365	65,622	71,629	63,257
Belmont	426,580	387,709	348 934	359,787	452,450	553,076	556,100	648,155	660,028
Brown	60,240	53,060	49,705	41,270	58,635	59,686	51,855	48,817	44,119
Butler	36,797	37,791	25,832	25,615	37,997	40,128	46,805	38,027	32,327
Carroll	243,829	324,576	326,937	314,263	380,926	466,152	474,380	552,210	557,814
Champaign	126,343	126,897	128,211	104,085	194,617	171,499	175,776	142,139	131,473
Clark	99,718	153,424	120,487	142,509	205,345	202,824	257,072	290,786	268,103
Clermont	26,691	33,582	25,554	24,811	27,456	31,110	25,183	21,087	33,892
Clinton	122,750	132,597	97,317	115 515	4,615	154,632	113,152	130,413	128,366
Columbiana	181,462	176,251	155,067	170,504	201,560	275,916	280,574	334,511	384,818
Coshocton	428,255	352,528	404,367	463,164	523,410	580,978	636,198	646,764	669,280
Crawford	177,393	220,367	199,646	201,365	220,954	223,891	230,871	248,263	271,526
Cuyahoga	30,982	31,282	29,773	27,188	31,680	34,233	43,295	50,098	48,876
Darke	39,960	38,301	28,031	24,013	36,032	49,762	40,375	42,720	27,626
Defiance	76,257	74,626	62,783	71,401	72,826	81 042	76,812	68,614	71,698
Delaware	252,780	221,301	186,114	210,081	262,103	323,285	245,081	400,871	401,929
Erie	69,572	63,289	59,675	65,514	75,952	75,379	102,522	104,670	130,778
Fairfield	87,511	91,616	56,270	58,998	81,434	132,584	144,003	109,837	160,193
Fayette	33,199	37,537	49,655	44,315	69,980	81,906	106,328	85,188	71,728
Franklin	52,330	57,571	46,748	44,271	54,448	55,828	66,803	79,684	72,306
Fulton	102,542	127,934	110,902	96,385	96,278	154,899	186,085	194,930	202,507
Gallia	61,700	72,843	76,464	61,945	74,951	90,473	86,914	87,569	77,028
Geauga	63,852	82,311	71,056	66,335	73,155	95,647	89,524	97,736	96,163
Greene	107,164	94,138	99,516	91,028	131,087	136,163	94,759	144,737	122,263
Guernsey	432,097	398,901	355,240	378,170	439,496	540,090	568,605	642,249	646,077
Hamilton	3,379	6,024	6,272	....	6,938	8,727	11,949	11,706	10,239
Hancock	192,938	194,200	171,988	155,955	201,755	219,293	224,107	231,029	249,301
Hardin	140,341	155,790	45,158	154,248	173,476	210,119	169,343	212,220	225,179
Harrison	540,864	580,209	562,095	339,373	676,295	812,770	814,892	912,412	874,018
Henry	44,841	49,356	41,028	36,505	52.332	96,426	59,769	64,663	56,457

Highland	110,726	109,426	84,205	87,176	114,380	126,252	118,008	101,814	93,597
Hocking	87,109	86,158	83,317	97,560	102,325	141,620	135,023	157,245	162,051
Holmes	123,153	142,832	118,686	148,219	148,645	183,859	189,520	198,379	228,399
Huron	354,720	283,336	284,424	275,803	297,408	334,188	343,096	404,463	417,970
Jackson	41,820	41,888	44,014	61,257	65,153	70,813	62,654	62,924	58,630
Jefferson	335,548	314,497	310,654	290,035	354,508	432,182	431,910	484,988	518,275
Knox	503,681	498,445	457,119	460,255	529,881	574,810	621,218	682,698	721,905
Lake	25,981	24,688	32,918	38,138	38,457	48,248	39,226	58,429	59,046
Lawrence	5,681	11,348	10,165	11,131	12,085	20,809	16,804	11,651	12,243
Licking	534,616	543,343	470,768	527,657	584,445	702,301	759,898	893,405	949,480
Logan	206,580	176,567	237,135	155,657	200,477	250,431	299,071	280,521	274,522
Lorain	118,142	118,696	115,431	125,062	128,229	159,736	157,268	199,888	197,912
Lucas	15,618	13,416	14,290	12,426	16,651	18,981	21,881	27,436	28,327
Madison	100,981	150,909	164,085	144,390	189,896	213,181	265,499	253,709	304,955
Mahoning	115,545	132,501	133,375	145,645	218,210	224,929	226,576	215,037	255,831
Marion	300,818	360,904	317,326	328,133	340,669	391,407	341,086	400,799	385,277
Medina	181,775	180,121	170,083	159,538	192,333	217,140	210,147	318,816	273,879
Meigs	143,300	143,743	132,118	137,653	216,315	239,055	213,029	248,028	258,507
Mercer	58,840	62,504	48,882	38,049	49,194	70,037	70,029	57,053	45,170
Miami	18,179	20,255	19,570	19,488	21,750	28,572	31,708	36,983	30,508
Monroe	94,018	92,446	70,686	71,673	108,718	155,480	179,735	184,675	188,016
Montgomery	11,711	15,400	11,713	7,916	13,033	19,060	22,675	16,272	19,418
Morgan	380,376	339,835	312,424	334,887	435,234	506,300	511,130	545,856	522,977
Morrow	370,108	348,115	341,632	322,291	368,913	452,859	472,037	549,181	548,073
Muskingum	458,708	450,004	441,585	472,490	540,753	567,953	588,831	640,590	595,996
Noble	302,211	258,796	232,378	243,588	343,803	424,738	384,021	475,456	484,336
Ottawa	25,935	28,259	27,160	27,860	33,038	36,344	38,143	68,725	49,506
Paulding	35,963	35,192	24,015	19,153	29,661	29,368	30,021	26,821	21,082
Perry	144,170	143,651	131,731	156,250	196,777	224,612	204,636	249,513	267,298
Pickaway	59,604	35,951	38,315	45,628	71,549	....	63,447	47,791	44,372
Pike	16,311	20,547	21,761	22,435	27,616	32,038	28,840	23,034	24,383
Portage	126,665	122,835	118,615	120,350	155,640	182,617	178,005	223,077	222,695
Preble	34,575	39,887	31,584	33,159	35,359	44,431	39,167	42,335	35,342
Putnam	43,257	53,571	49,363	34,845	53,330	61,903	56,546	79,307	90,578
Richland	192,336	218,367	164,947	163,781	215,003	230,000	251,568	282,856	239,520
Ross	67,999	55,115	53,111	46,679	68,542	63,811	68,282	73,696	75,040
Sandusky	82,044	83,572	85,016	65,936	105,736	117,395	84,235	107,390	136,646
Scioto	5,554	5,768	5,508	6,297	8,654	7,776	5,652	5,847	10,504
Seneca	177,127	174,341	145,419	162,462	204,117	202,496	211,600	238,177	246,735
Shelby	40,480	36,368	29,130	28,905	47,185	33,822	39,311	35,109	35,717
Stark	124,765	136,455	112,335	130,354	158,771	194,159	185,899	207,773	205,608
Summit	40,961	48,618	44,759	41,179	59,435	65,306	66,760	78,970	75,382
Trumbull	134,121	143,291	135,160	140,458	179,270	211,540	212,160	241,348	239,282
Tuscarawas	155,420	151,658	142,789	151,606	202,810	262,672	272,365	316,990	298,704
Union	252,370	203,216	194,238	190,750	234,934	273,134	315,100	283,322	338,504
Van Wert	61,674	74,896	50,665	43,495	74,037	56,585	62,104	56,653	48,155
Vinton	80,062	104,481	98,716	110,548	136,158	150,964	38,360	145,997	149,013
Warren	64,112	70,676	59,385	61,164	69,788	68,108	82,132	69,874	63,193
Washington	198,705	199,010	183,583	296,001	267,207	349,423	327,404	362,268	392,812

COMPARATIVE TABLE SHOWING PRODUCTION OF WOOL IN OHIO FOR NINE YEARS—Concluded.

Counties.	Pounds shorn.								
	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Wayne	125,543	133,238	116,191	107,401	136,397	153,415	155,215	170,601	156,608
Williams	153,175	166,295	136,522	135,849	149,616	162,474	164,650	188,565	176,524
Wood	75,379	75,567	102,511	84,074	97,399	86,055	117,609	120,894	129,066
Wyandot	331,047	286,275	352,924	368,432	375,920	406,395	346,650	412,110	402,432
Total product	13,017,052	13,104,374	11,877,503	12,262,439	14,671,104	17,161,826	17,284.073	19,405,224	19,635,824

Average product for 9 years, 15,379,935 pounds.

TABLE SHOWING THE NUMBER OF HORSES IN OHIO FOR TEN YEARS—INCLUDES CITIES AND RURAL DISTRICTS.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	4,622	4,503	4,426	4,670	4,927	5,011	5,705	5,649	5,701	6,041
Allen	8,727	8,225	8,397	8,894	9,174	9,193	9,231	9,651	10,022	10,006
Ashland	7,104	6,999	7,009	6,698	7,045	7,784	8,144	8,552	8,885	8,590
Ashtabula	9,038	9,370	9,838	10,424	10,960	11,132	11,576	11,598	12,008	12,208
Athens	4,170	4,543	4,637	4,918	5,063	5,349	5,736	6,290	5,874	5,411
Auglaize	8,178	7,869	8,101	8,648	8,883	9,171	9,093	9,391	9,425	9,516
Belmont	7,551	8,228	8,480	8,755	9,239	10,249	11,002	11,550	11,365	11,107
Brown	6,714	6,591	6,567	7,214	7,014	7,313	7,821	8,505	8,576	8,486
Butler	10,350	10,472	10,677	10,841	11,349	11,837	12,274	11,968	11,908	11,953
Carroll	4,407	4,390	4,599	4,732	5,189	5,833	6,350	6,692	6,782	6,497
Champaign	10,143	9,969	10,080	10,512	11,301	11,809	12,141	12,405	12,276	11,989
Clark	11,412	11,004	11,371	11,709	11,661	11,392	12,476	12,208	11,896	11,313
Clermont	7,078	6,644	6,676	7,351	7,292	7,667	8,447	8,725	8,509	8,691
Clinton	9,022	8,755	9,002	9,576	9,778	10,480	11,074	11,091	10,862	10,564
Columbiana	9,289	9,384	9,503	9,494	9,567	9,854	10,260	10,882	11,029	11,129
Coshocton	6,013	6,607	6,904	7,018	7,524	7,391	8,122	8,433	8,533	8,239
Crawford	8,391	8,232	8,537	8,374	8,406	8,631	8,595	8,743	9,349	9,536
Cuyahoga	18,158	18,729	18,624	19,443	19,931	18,833	19,636	19,925	19,527	20,105
Darke	15,044	14,552	14,590	14,373	15,061	15,700	15,631	15,760	15,598	15,156
Defiance	5,812	5,941	6,460	6,559	6,671	6,748	7,385	7,313	7,627	7,315
Delaware	6,881	7,310	7,194	7,578	8,400	9,161	10,059	9,965	10,252	10,870
Erie	5,497	4,789	5,385	5,353	5,600	5,994	6,104	6,115	6,215	6,126
Fairfield	9,669	10,019	10,117	9,562	9,807	10,533	10,654	10,714	10,665	10,354
Fayette	9,059	8,782	9,120	9,600	9,763	11,143	11,171	11,149	10,710	10,512
Franklin	14,571	14,504	14,697	15,551	15,862	18,136	17,667	18,689	20,064	17,981
Fulton	6,915	7,112	7,013	6,562	7,376	7,653	7,816	8,929	8,963	8,947
Gallia	4,473	4,892	4,682	4,968	5,315	5,673	5,741	5,904	6,088	5,900
Geauga	5,232	5,345	5,351	5,707	5,821	5,780	6,032	6,168	6,689	6,665
Greene	9,958	9,734	10,229	10,532	10,918	11,510	11,730	11,736	12,184	11,706
Guernsey	5,359	5,427	5,676	6,390	6,079	6,911	6,671	6,967	7,281	7,050
Hamilton	16,847	17,799	18,169	18,782	19,527	20,330	20,656	21,046	20,334	20,406
Hancock	10,225	10,200	10,544	10,612	10,913	11,405	12,179	12,134	12,869	12,218
Hardin	7,793	6,960	7,361	7,646	8,177	8,457	8,861	8,901	8,864	9,244
Harrison	4,741	4,671	4,798	4,943	5,274	5,780	6,418	6,974	7,184	6,829
Henry	5,578	6,678	6,481	6,683	6,891	7,167	7,312	6,708	8,017	7,306
Highland	8,177	8,027	8,264	8,518	9,252	9,298	10,088	10,132	10,079	10,157
Hocking	3,757	3,565	3,404	3,743	4,046	3,980	4,193	4,019	3,886	3,913
Holmes	6,807	6,851	6,491	6,303	6,408	6,972	7,428	8,035	8,095	8,349
Huron	10,056	8,183	8,171	8,278	8,460	8,870	9,090	9,518	9,630	9,603
Jackson	3,590	3,462	3,549	3,609	3,692	3,868	4,026	3,860	3,679	3,761

TABLE SHOWING THE NUMBER OF HORSES IN OHIO FOR TEN YEARS—INCLUDING CITIES AND RURAL DISTRICTS—Concluded.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Jefferson	5,701	5,769	6,097	6,307	6,212	6,813	7,231	7,388	7,567	7,330
Knox	7,693	7,304	7,730	8,059	8,592	9,243	9,722	10,314	10,321	10,327
Lake	4,286	4,830	4,262	4,560	4,614	4,899	4,969	4,656	5,038	4,742
Lawrence	3,647	3,523	3,586	3,668	3,685	4,301	4,142	4,187	3,951	4,342
Licking	12,198	12,138	12,571	12,825	13,915	14,037	14,538	14,336	14,055	13,907
Logan	9,188	8,346	8,595	8,711	9,115	10,085	10,040	10,089	10,467	10,406
Lorain	8,803	9,097	9,039	9,521	8,699	10,268	10,727	11,137	11,505	11,332
Lucas	9,549	9,124	9,329	9,202	8,826	8,906	9,024	9,292	9,417	9,213
Madison	8,973	9,404	9,266	9,671	10,392	10,652	10,548	10,847	10,172	9,799
Mahoning	8,515	8,263	8,493	8,963	9,029	9,532	9,725	9,777	9,539	10,522
Marion	7,169	7,342	7,534	7,543	8,142	8,621	9,117	8,812	9,172	9,147
Medina	8,108	7,721	8,000	8,086	8,326	8,971	9,312	9,748	10,066	10,111
Meigs	5,197	5,304	5,345	5,407	5,679	5,955	6,323	6.330	5,889	5,847
Mercer	8,402	7,939	8,278	8,246	8,295	9,061	9,393	9,444	9,718	10,287
Miami	11,396	10,367	11,450	11,217	11,289	11,999	12,207	12,356	12.201	11,907
Monroe	5,174	4,754	4,965	5,171	5,965	5,777	6,341	6,262	6.801	6,110
Montgomery	16,310	15,759	16.757	15,797	16,143	16,833	17,264	17,333	15.904	16,650
Morgan	4,659	4,754	4,920	5,087	5,571	6,282	6,756	7,169	7,208	6,722
Morrow	7,734	7,262	7,200	7,342	7,561	8,412	8,485	8,826	9,071	9,101
Muskingum	8,967	9,374	9,739	10,075	10,627	11,034	11,594	12,226	11,961	11,050
Noble	4,048	4,183	4,183	4,532	4,626	5,220	6,452	5,860	5,840	5,725
Ottawa	5,413	5,265	5,255	5,333	5,428	5,493	5,504	5,953	6,042	6,055
Paulding	5,176	4,666	4,286	4,826	4,640	4,780	5,253	5,604	5,938	6,074
Perry	5,551	5,487	5,660	5,973	6,301	6,712	6,703	6,687	6,658	6,312
Pickaway	9,561	9,559	9,972	10.283	10,502	10,754	11,314	11.228	11,442	11,553
Pike	4,236	4,265	4,029	4,161	4,317	4,651	4,561	4,520	4,356	4.497
Portage	7,884	7,714	7,961	8,264	8,444	8,930	9,052	9,500	9,551	10,078
Preble	9,874	9,310	9,072	9.498	9,518	9,932	10,140	10,465	10,340	9,916
Putnam	8,151	8,470	8,433	8,566	8,821	9,141	9,115	9,538	8,884	9,138
Richland	8,594	8,698	8,671	8,715	9.030	9,474	9,991	10.097	10,678	10,543
Ross	10,522	10,477	10,934	11 347	12,152	12,730	12,722	12,641	12,409	12,113
Sandusky	8,434	8,430	8,325	8,292	9,182	9,008	9,518	9,145	9,385	9,564
Scioto	5,593	5,476	5,153	5,227	5,312	5,395	5,539	5,112	5,011	4,880
Seneca	9,145	8,971	9,083	9,505	9,386	10,068	10,477	10,611	10,706	11,662
Shelby	8,595	8,526	8,467	8,371	8,610	8,901	9,045	9,550	9,606	9,517
Stark	14,569	13,975	14,218	14,728	15.443	15,575	15.736	15.798	15,859	15,886
Summit	9.073	9,352	9.247	9,444	9.523	9,905	9,995	10,607	10,851	10,877
Trumbull	10,584	10,564	10,659	11,247	11,941	12,003	12,761	12,701	13,044	12,653
Tuscarawas	7,264	7,575	7,872	7,945	8,483	8,950	8,847	9,266	9,963	9,896

Union	7,630	7,277	7,408	7,546	7,704	8,557	8,915	9,276	9,953	9,865
Van Wert	8,250	7,789	8,371	8,370	8,901	8,962	9,383	9,697	9,818	9,555
Vinton	2,504	2,578	2,632	2,659	2,814	2,948	3,023	3,206	2,766	2,989
Warren	9,143	9,222	9,209	9,464	9,742	10,285	10,549	11,339	11,025	10,634
Washington	7,692	7,476	7,839	7,749	8,110	8,135	8,724	8,603	8,343	8,411
Wayne	10,821	10,888	11,115	11,165	11,217	11,685	12,233	12,812	12,974	12,932
Williams	6,256	6,377	6,277	6,192	6,672	7,346	7,629	8,191	8,628	9,035
Wood	11,256	10,933	11,731	11,640	11,159	11,107	11,514	12,349	12,361	11,955
Wyandot	7,150	6,971	6,962	7,227	7,216	7.641	8,092	8,330	8,499	8,741
Totals	711,146	704,165	717,734	735,030	759,482	795,967	824,840	842,209	848,443	841,797

TABLE SHOWING THE NUMBER OF CATTLE IN OHIO FOR TEN YEARS—INCLUDES CITIES AND RURAL DISTRICTS.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	10,384	9,716	9,114	7,852	8,354	8,575	7,506	10,230	11,037	11,611
Allen	15,177	13,640	13,224	12,345	12,151	12,779	12,358	12,540	14,123	14,736
Ashland	14,726	14,843	13,592	11,942	12,317	13,124	13,450	14,218	15,326	15,452
Ashtabula	28,448	27,478	26,726	23,961	23,855	24,386	24,704	25,783	28,420	28,225
Athens	11,217	12,099	11,218	9,761	9,175	10,836	13,078	14,574	14,579	13,536
Auglaize	15,224	14,587	13,224	12,692	13,265	14,705	13,920	13,874	14,872	15,004
Belmont	21,850	20,331	19,127	17,429	17,055	19,871	20,597	21,661	22,083	21,985
Brown	13,112	12,306	10,784	10,843	10,617	10,679	11,534	11,428	11,848	11,727
Butler	15,691	14,668	13,711	13,096	12,842	14,030	14,371	14,512	15,548	16,958
Carroll	13,248	12,785	11,814	10,961	11,067	12,226	13,433	14,326	14,778	14,782
Champaign	17,928	17,168	14,958	14,058	13,975	15,714	15,423	15,451	15,726	15,943
Clark	18,453	17,866	15,789	14,758	14,729	14,493	16,509	16,193	16,661	15,091
Clermont	10,567	9,500	9,081	8,950	9,624	10,310	11,097	11,000	10,855	11,999
Clinton	15,540	14,093	13,386	12,010	12,538	12,906	13,146	13,943	14,756	12,620
Columbiana	22,072	20,005	19,456	18,243	17,705	18,234	18,553	19,060	20,518	20,667
Coshocton	16,728	17,659	15,823	13,952	14,376	14,519	15,103	17,380	19,162	18,350
Crawford	17,348	16,018	15,229	14,370	14,353	14,592	14,349	13,747	15,065	16,641
Cuyahoga	16,631	16,142	15,768	15,642	15,293	15,571	15,637	16,225	16,965	19,670
Darke	23,039	22,213	20,591	19,041	19,694	20,837	21,125	21,953	22,313	22,078
Defiance	9,957	9,958	9,485	9,299	9,782	8,481	8,154	9,308	10,441	11,186
Delaware	16,669	15,929	15,766	13,710	13,283	14,429	14,779	14,994	15,155	16,010
Erie	7,873	6,934	7,223	7,057	6,800	6,980	6,152	7,071	7,581	7,857
Fairfield	21,365	19,474	17,210	16,400	16,793	19,073	19,811	19,698	20,716	20,446
Fayette	20,007	17,049	16,931	15,298	13,502	16,143	16,149	16,974	15,776	15,010
Franklin	18,662	18,427	17,587	17,459	16,972	19,846	19,414	19,912	22,119	21,328
Fulton	14,335	14,085	12,603	11,029	12,548	12,855	12,773	13,071	13,844	14,326
Gallia	11,956	11,900	10,328	8,812	9,237	10,324	11,201	12,156	13,027	13,199
Geauga	20,263	20,291	18,898	17,103	16,067	17,243	17,077	16,889	18,168	18,372
Greene	17,126	15,341	14,804	13,926	14,508	15,027	15,974	15,553	15,219	15,302
Guernsey	15,351	14,532	13,737	12,938	11,919	14,553	14,514	15,716	16,260	15,166
Hamilton	17,483	17,774	17,665	18,421	18,595	19,883	20,007	20,693	20,837	21,913
Hancock	22,223	20,698	19,716	18,429	18,689	19,086	18,917	18,607	19,648	20,293
Hardin	17,251	14,927	13,793	12,629	12,067	12,352	12,543	13,579	14,557	15,643
Harrison	12,035	11,931	11,497	10,642	9,944	11,335	12,225	12,673	13,119	12,962
Henry	12,895	12,111	11,191	11,388	11,380	17,712	10,926	10,092	12,449	12,029
Highland	18,774	16,577	15,639	14,401	14,514	16,282	16,261	18,491	19,731	18,843
Hocking	9,711	8,778	7,878	7,757	8,192	8,821	9,845	9,721	10,081	9,893
Holmes	18,241	17,486	15,455	13,234	13,980	16,767	16,855	17,939	18,672	16,834
Huron	14,779	14,224	13,026	12,063	12,435	12,648	12,243	13,673	15,001	15,902
Jackson	11,273	10,745	9,282	8,672	8,871	9,693	10,259	11,142	11,972	12,591
Jefferson	12,773	10,692	11,459	10,479	9,815	11,133	12,775	12,812	13,971	14,137
Knox	13,897	17,153	15,862	14,643	14,363	16,203	16,664	17,153	17,633	13,905

Lake	7,189	6,969	6,444	6,015	6,026	6,006	6,069	6,425	7,112	6,960
Lawrence	9,320	8,377	7,642	7,120	6,544	7,665	8,634	9,411	10,370	12,431
Licking	26,760	25,370	22,868	21,233	22,356	23,948	25,059	26,148	26,171	25,947
Logan	18,828	17,020	15,205	12,781	13,324	14,711	13,942	14,531	15,472	15,456
Lorain	22,139	21,185	20,138	20,262	19,107	10,182	15,996	20,779	23,694	24,959
Lucas	9,317	8,588	8,189	7,819	7,813	7,665	7,546	8,013	9,445	8,841
Madison	19,470	17,498	24,308	16,448	15,490	18,918	18,379	17,854	19,080	17,672
Mahoning	18,384	16,700	15,942	14,858	14,501	15,301	17,238	16,371	17,741	18,010
Marion	15,185	15,232	13,264	12,243	11,779	12,152	12,054	12,264	13,539	13,653
Medina	17,394	15,320	15,631	14,871	15,240	15,749	15,417	16,039	16,960	17,030
Meigs	10,748	10,778	10,280	9,159	8,912	10,893	12,021	11,588	13,399	19,173
Mercer	15,713	15,285	14,343	13,455	14,025	14,812	15,777	15,184	16,243	17,891
Miami	14,523	13,690	12,961	12,120	12,455	13,405	13,805	13,983	14,066	13,794
Monroe	12,460	13,115	11,866	10,440	9,786	12,843	13,935	14,964	16,409	14,802
Montgomery	19,791	19,444	18,376	16,048	17,048	18,618	18,567	18,274	16,895	18,141
Morgan	13,308	13,098	12,371	11,813	11,128	12,878	14,029	15,598	16,445	14,926
Morrow	15,035	14,847	13,285	11,782	11,562	12,434	11,965	12,436	13,409	13,122
Muskingum	24,316	24,002	22,494	22,069	21,363	23,786	25,151	26,108	26,099	24,473
Noble	14,312	14,206	12,613	11,436	10,400	12,774	13,303	14,717	15,083	14,839
Ottawa	8,792	7,968	7,491	7,396	7,634	7,669	17,598	7,904	8,525	9,011
Paulding	6,459	5,727	4,901	5,016	5,345	4,956	5,477	5,951	7,185	8,217
Perry	15,318	14,053	13,039	11,870	12,399	13,987	14,892	14,842	15,635	14,846
Pickaway	20,121	18,678	18,244	17,210	17,737	20,047	19,803	19,853	20,459	19,448
Pike	6,143	5,623	4,849	4,595	5,131	5,499	6,268	7,220	7,357	7,538
Portage	21,311	20,181	19,532	18,076	17,033	19,654	19,851	20,176	20,928	21,324
Preble	16,086	15,281	14,072	13,199	13,330	12,805	14,374	15,165	15,122	14,373
Putnam	16,822	16,118	14,354	13,267	13,531	13,221	13,804	14,202	15,750	15,428
Richland	17,095	16,063	15,039	13,291	13,903	14,863	14,974	15,362	16,728	16,882
Ross	21,124	19,197	17,482	16,918	16,916	18,972	19,285	19,599	20,721	20,582
Sandusky	14,289	13,362	12,977	11,205	12,386	12,807	12,897	12,526	13,943	14,364
Scioto	8,815	8,858	7,624	7,678	7,995	8,227	8,693	9,549	10,209	10,881
Seneca	17,133	15,206	14,215	15,100	15,483	16,052	15,327	15,390	17,293	18,407
Shelby	16,091	14,730	13,334	13,195	14,159	14,018	18,984	14,687	14,838	15,342
Stark	28,652	26,352	25,383	24,048	24,692	24,989	26,061	27,105	28,536	28,369
Summit	21,465	20,250	19,287	17,644	16,848	17,426	17,516	18,962	20,495	20,452
Trumbull	32,350	31,500	29,374	26,897	26,089	26,594	27,051	28,635	30,978	30,562
Tuscarawas	21,139	20,400	19,579	18,796	19,277	20,344	20,278	21,872	24,150	23,938
Union	15,222	14,014	12,540	11,182	11,069	12,953	12,754	13,142	14,178	13,818
Van Wert	12,198	11,278	10,684	9,413	10,522	10,919	10,852	11,253	12,824	11,080
Vinton	6,646	6,685	5,766	5,350	5,475	6,242	6,832	8,251	8,635	8,359
Warren	15,524	13,425	12,194	11,569	11,537	12,129	12,380	12,883	13,375	13,050
Washington	17,771	17,236	15,884	13,772	13,798	15,509	17,784	18,729	18,728	18,529
Wayne	25,352	24,960	22,730	20,615	20,720	21,435	21,392	22,714	24,760	23,794
Williams	12,244	12,461	11,259	10,122	11,009	11,020	10,845	11,032	12,165	12,888
Wood	17,909	17,498	14,730	15,807	14,974	15,788	15,473	15,328	16,820	17,258
Wyandot	14,200	13,304	11,440	11,191	10,403	10,757	10,534	10,562	11,543	13,081
Totals	1,427,661	1,351,251	1,265,664	1,174,094	1,175,475	1,252,888	1,296,105	1,339,569	1,420,105	1,431,179

TABLE SHOWING THE NUMBER OF MULES IN OHIO FOR TEN YEARS.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	190	181	189	189	228	218	246	233	223	266
Allen	102	112	98	103	98	139	133	138	175	194
Ashland	66	55	54	56	58	78	83	94	92	99
Ashtabula	85	42	41	42	43	53	52	47	52	46
Athens	119	133	170	165	177	190	219	213	190	299
Auglaize	114	133	148	171	175	207	231	263	289	318
Belmont	374	313	370	375	386	382	383	419	404	417
Brown	199	209	213	210	238	291	325	299	287	294
Butler	472	450	453	482	537	649	823	882	792	835
Carroll	63	72	62	73	75	96	77	119	118	137
Champaign	169	148	143	153	164	175	175	187	165	173
Clark	201	190	299	211	213	207	217	262	270	294
Clermont	489	546	569	604	645	679	733	790	807	1,051
Clinton	296	310	322	328	354	362	340	332	296	309
Columbiana	62	66	85	77	87	128	191	230	198	199
Coshocton	159	159	111	103	110	110	143	139	181	183
Crawford	69	68	79	67	86	91	138	112	137	142
Cuyahoga	49	57	114	85	129	104	124	172	197	245
Darke	287	280	317	344	403	409	407	474	501	534
Defiance	59	59	75	82	87	96	107	141	138	135
Delaware	57	57	55	55	63	60	86	175	97	106
Erie	15	7	22	17	26	21	25	30	31	33
Fairfield	130	124	134	129	120	143	145	161	140	148
Fayette	174	166	152	179	198	260	224	200	198	240
Franklin	113	101	131	121	131	147	198	243	235	308
Fulton	27	30	24	18	30	40	45	52	56	81
Gallia	207	207	234	264	246	281	273	237	224	217
Geauga	26	30	32	39	55	48	52	33	37	82
Greene	183	172	173	191	191	240	226	207	228	217
Guernsey	190	237	219	240	191	183	154	161	143	135
Hamilton	1,112	1,107	1,271	1,359	1,448	1,572	1,899	2,107	2,069	2,465
Hancock	83	80	99	94	105	121	132	162	161	199
Hardin	88	83	101	129	155	161	200	210	189	266
Harrison	64	60	54	49	42	43	36	48	44	62
Henry	66	53	67	72	77	101	111	123	139	141
Highland	219	214	207	235	265	291	295	274	251	213
Hocking	49	58	53	61	87	85	119	117	143	151
Holmes	66	83	73	86	96	103	110	144	125	139
Huron	79	89	95	92	87	84	73	92	110	119
Jackson	836	820	830	795	808	784	782	762	639	577

Jefferson	186	255	195	188	180	196	213	225	222	207
Knox	114	116	115	110	111	117	121	162	153	141
Lake	5	9	13	15	26	30	43	42	51	44
Lawrence	546	491	494	515	545	635	656	606	564	653
Licking	101	112	100	116	126	115	145	161	160	195
Logan	81	74	84	71	72	103	95	110	137	140
Lorain	50	38	76	41	33	47	42	43	59	55
Lucas	98	116	137	144	118	125	134	142	186	176
Madison	225	240	254	234	239	268	284	308	286	264
Mahoning	77	84	104	75	86	98	83	128	144	174
Marion	186	123	114	131	124	143	141	152	177	180
Medina	107	93	125	116	137	236	142	133	130	143
Meigs	210	218	222	258	289	284	288	321	310	347
Mercer	120	119	132	122	143	162	171	203	222	247
Miami	233	249	234	242	240	280	309	324	324	322
Monroe	59	48	88	77	62	73	93	105	99	106
Montgomery	246	215	227	240	255	265	316	323	320	373
Morgan	41	45	52	49	52	53	66	81	84	101
Morrow	42	53	62	54	50	57	74	64	73	88
Muskingum	153	167	171	162	201	222	229	275	278	289
Noble	52	60	57	45	44	52	44	56	51	63
Ottawa	39	40	14	10	20	27	13	15	30	34
Paulding	48	29	41	42	50	54	80	120	147	192
Perry	106	95	100	116	115	124	123	163	133	146
Pickaway	281	311	280	273	287	301	304	312	329	328
Pike	190	195	203	207	253	246	267	303	308	370
Portage	70	98	91	97	93	70	83	61	69	73
Preble	320	271	255	237	240	228	229	228	273	250
Putnam	55	64	50	78	74	94	106	156	150	173
Richland	114	121	142	147	151	177	196	213	233	244
Ross	132	156	149	203	182	236	220	195	238	304
Sandusky	50	43	53	60	78	80	87	107	110	123
Scioto	603	641	631	774	787	842	912	873	890	863
Seneca	69	61	63	89	90	104	88	114	112	148
Shelby	87	81	89	98	110	124	131	135	142	171
Stark	351	331	327	319	356	372	400	447	403	380
Summit	97	105	88	94	72	90	89	121	123	129
Trumbull	94	159	98	57	65	68	59	89	101	104
Tuscarawas	118	159	113	130	125	130	142	156	195	197
Union	45	30	36	31	49	62	66	140	77	85
Van Wert	168	156	152	141	178	167	195	221	220	247
Vinton	97	101	106	117	146	144	178	193	187	223
Warren	397	403	389	383	407	475	505	505	594	604
Washington	191	178	171	164	183	192	188	186	233	221
Wayne	167	181	182	182	171	155	162	179	193	211
Williams	40	57	57	65	68	83	95	99	115	120
Wood	94	80	101	130	130	241	155	196	196	206
Wyandot	60	76	55	51	71	63	88	101	106	131
Totals	14,373	14,508	15,030	15,445	16,398	17,942	19,181	20,676	20,663	22,754

TABLE SHOWING THE NUMBER OF SHEEP IN OHIO FOR TEN YEARS.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	9,068	8,784	7,997	7,421	8,533	11,420	14,311	13,601	13,974	12,894
Allen	20,707	19,193	17,705	14,365	16,676	22,681	28,634	28,097	28,492	24,908
Ashland	36,876	36,114	32,885	27,790	28,266	36,075	43,363	47,689	53,168	51,607
Ashtabula	16,575	19,188	18,374	17,797	20,201	25,228	29,537	29,987	33,191	30,927
Athens	46,086	43,879	40,478	33,264	34,310	40,861	61,550	65,511	77,293	75,558
Auglaize	12,011	11,811	9,568	8,580	10,907	13,743	16,008	16,492	15,762	13,641
Belmont	84,760	76,542	72,991	60,908	62,292	89,370	107,751	117,548	128,108	124,070
Brown	12,814	12,315	12,225	9,579	9,611	11,910	13,249	12,825	11,396	9,613
Butler	9,980	10,687	7,482	5,746	7,721	10,252	12,202	11,845	11,070	9,867
Carroll	59,301	62,660	60,888	53,090	58,566	78,584	100,338	101,269	107,726	106,412
Champaign	23,475	22,419	23,873	23,322	21,431	31,666	32,268	37,395	30,743	29,729
Clark	23,829	28,602	27,449	26,699	27,624	28,653	43,572	48,733	46,900	44,595
Clermont	7,713	7,383	6,647	5,629	7,208	8,193	8,572	7,668	6,773	6,993
Clinton	25,787	24,605	25,474	19,615	23,751	28,848	32,537	34,284	30,028	27,543
Columbiana	36,361	36,622	36,705	30,962	33.974	43,214	55,475	62,745	73,718	78,630
Coshocton	77,362	81,371	78,952	71,824	75,820	94,376	110,135	114,600	118,852	117,590
Crawford	45,257	34,768	42,534	36,786	41,043	53,811	52,029	50,824	51,972	54,006
Cuyahoga	7,119	7,022	6,757	6,055	6,348	7,976	9,353	10,758	12,472	12,941
Darke	7,754	6,753	6,870	5,219	5,793	8,350	10,537	10,730	8,804	6,329
Defiance	14,494	14,071	13,056	10,926	12,063	14,064	15,131	15,871	16,083	15,002
Delaware	44,578	44,202	42,646	39,259	41,644	53,635	65.297	73,[illegible]96	82,267	79,392
Erie	12,934	10,943	12,575	11,343	12,890	16,085	20,792	20,518	25,189	24,540
Fairfield	18,443	16,925	16,736	12,714	13,993	21,589	26,935	29,472	28,244	28,810
Fayette	13,555	14,537	13,117	11,285	13,498	20,952	23,212	27,865	23,295	21,974
Franklin	12,761	11,953	11,042	10,221	10,838	15,771	18,449	20,093	21,265	20,165
Fulton	21,126	21,644	20,278	19,490	20,473	24,754	33.618	34,848	37,665	35,334
Gallia	13,930	15,425	14,788	13,710	13,946	20,024	22,751	22,871	20,659	17,166
Geauga	12,056	14,287	14,956	14,508	14,709	18,257	22,438	23,337	25,177	23,827
Greene	18,665	18,188	16,860	14,547	18,342	22,963	24,819	28,711	22,794	20,208
Guernsey	74,621	74,087	69,769	60,533	63,368	88,459	102,831	106,224	116,842	112,171
Hamilton	2,139	2,590	2,188	2,033	2,620	3,289	3,657	3,694	3,395	3,138
Hancock	36,400	35,355	33,066	30,595	33,887	41,912	48,575	47,795	52,810	49,415
Hardin	36,006	33,192	32,848	27,339	30,873	43,532	46,782	46,435	49,648	51,053
Harrison	104,134	103,803	100,162	89,339	92,134	121,599	140,840	145,472	159,246	153,587
Henry	8,722	8,628	8,787	7,438	8,318	10,914	14,174	14,326	14,971	13,061
Highland	25,591	23,817	21,075	17,770	18,693	23,300	27,510	27,499	25,697	20,616
Hocking	17,293	16,215	15,673	14,018	17,769	23,392	28,436	27,766	30,524	30,639
Holmes	31,245	30,336	27,926	23,737	25,198	34,027	41,146	42,987	44,603	45,852
Huron	53,312	53,931	53,508	46,985	46,321	54,170	60,977	66,151	71,020	74,044
Jackson	8,889	8,617	8,955	9,031	11,827	14,769	15,363	14,857	14,325	13,809

Jefferson	60,433	56,998	56,636	49,064	46,273	65,203	82,985	81,368	89,134	93,962
Knox	95,698	90,645	84,764	73,681	76,411	103,200	117,246	128,747	133,347	129,994
Lake	6,456	7,431	7,377	6,795	7,914	9,690	12,415	14,115	15,511	15,822
Lawrence	3,350	3,109	3,128	3,257	3,619	5,031	5,856	5,846	5,483	4,974
Licking	94,483	93,434	92,214	81,652	92,243	115,620	137,018	147,391	157,019	158,765
Logan	36,862	34,405	31,371	30,074	34,237	44,530	51,541	56,630	54,610	50,762
Lorain	26,753	27,280	24,447	21,677	25,019	30,668	36,711	39,432	43,487	42,111
Lucas	3,339	3,259	3,191	2,740	2,736	4,044	5,723	6,406	6,773	5,689
Madison	26,540	27,555	28,991	29,586	31,854	47,704	52,487	58,510	58,617	59,372
Mahoning	24,992	29,506	29,815	25,143	26,877	37,678	45,350	45,304	46,050	51,237
Marion	57,811	59,518	54,174	44,750	50,035	56,109	64,552	70,410	73,729	69,958
Medina	31,042	32,743	32,415	30,119	32,606	40,894	48,850	53,534	55,001	55,109
Meigs	30,263	30,244	28,357	25,956	27,775	38,698	45,853	43,938	48,306	45,681
Mercer	14,827	13,977	11,980	9,419	9,039	12,222	13,931	14,576	12,065	10,202
Miami	4,516	4,871	4,902	5,235	4,470	6,253	7,747	7,950	7,630	6,888
Monroe	17,735	17,826	16,441	12,536	14,230	25,833	35,320	36,808	39,136	35,469
Montgomery	3,216	3,058	3,128	2,685	3,535	5,194	6,043	6,639	4,567	4,004
Morgan	68,079	65,214	59,079	51,736	54,892	72,090	89,610	92,363	98,151	92,196
Morrow	66,318	63,701	60,362	53,120	54,854	72,902	84,894	90,392	97,310	95,045
Muskingum	89,319	88,069	83,589	75,336	82,945	105,392	120,122	125,656	129,360	122,952
Noble	56,368	53,167	45,822	41,233	40,047	61,070	75,938	75,258	80,546	76,787
Ottawa	4,991	5,265	5,148	4,822	6,014	7,977	9,641	13,388	11,570	11,729
Paulding	8,626	6,929	6,034	4,559	5,242	6,726	6,840	7,584	6,732	5,867
Perry	29,087	27,497	25,817	24,339	27,715	37,022	44,694	45,777	51,453	50,123
Pickaway	10,625	9,994	9,471	8,777	9,969	13,615	15,015	16,218	12,538	13,237
Pike	4,602	4,991	8,890	3,896	5,909	7,989	7,407	6,838	6,614	5,890
Portage	25,446	25,406	26,989	23,607	25,332	33,562	42,274	44,799	48,264	49,756
Preble	7,599	7,702	7,190	5,741	7,144	9,042	10,376	9,660	9,018	7,389
Putnam	13,403	12,452	10,384	8,759	10,230	13,133	15,130	15,721	15,037	14,239
Richland	41,787	42,352	39,912	32,842	34,266	47,051	54,017	57,122	60,048	59,243
Ross	11,785	12,254	12,277	11,220	11,387	17,885	20,312	21,098	20,775	18,568
Sandusky	16,079	17,294	19,095	14,014	16,783	20,375	24,817	26,377	25,043	27,610
Scioto	1,964	1,762	1,814	1,727	2,341	2,973	2,926	2,651	2,377	2,441
Seneca	36,001	33,581	32,726	30,827	32,004	39,655	43,258	46,362	49,810	52,611
Shelby	8,295	8,385	7,287	6,172	6,814	8,414	9,406	9,444	8,749	4,877
Stark	24,829	25,680	26,230	23,453	26,215	33,802	41,081	42,239	43,802	45,359
Summit	9,312	9,526	9,986	8,871	9,935	13,442	16,708	18,662	21,968	22,602
Trumbull	27,658	29,016	29,893	26,922	30,041	40,339	49,181	50,412	56,110	52,792
Tuscarawas	33,977	33,801	32,639	28,681	32,781	45,206	57,225	58,767	67,198	66,070
Union	44,732	42,011	43,616	36,150	37,395	53,698	56,814	60,277	63,792	58,905
Van Wert	14,962	14,083	13,338	9,273	10,595	13,045	14,667	14,900	13,901	12,190
Vinton	19,658	18,380	19,097	18,152	22,420	27,799	30,335	30,584	30,680	30,054
Warren	12,336	12,965	11,965	11,577	14,408	16,288	18,720	18,015	16,862	13,712
Washington	40,064	40,706	37,824	32,961	38,472	52,576	66,967	66,889	67,143	66,213
Wayne	24,770	28,481	25,671	21,573	22,823	29,808	35,424	35,897	36,177	36,647
Williams	25,539	28,043	24,466	21,521	22,376	26,689	30,746	32,818	33,523	36,073
Wood	16,657	17,745	17,586	19,478	20,374	24,816	30,752	31,917	30,490	29,436
Wyandot	66,852	59,986	56,245	56,475	59,462	68,026	75,078	81,064	80,813	82,925
Totals	2,544,070	2,512,761	2,404,558	2,123,624	2,293,686	3,004,636	3,555,182	3,729,542	3,887,610	3,796,695

TABLE SHOWING THE NUMBER OF HOGS IN OHIO FOR TEN YEARS.

Counties.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Adams	10,346	12,243	14,202	10,908	11,600	10,591	9,362	9,491	9,495	13,125
Allen	23,449	23,517	26,638	20,352	25,017	21,937	20,661	17,658	19,243	26,638
Ashland	15,535	17,814	20,348	16,419	14,881	13,924	12,459	11,788	13,345	17,320
Ashtabula	3,661	4,684	5,072	5,547	5,993	5,475	4,209	3,723	4,254	4,948
Athens	3,444	3,837	4,900	4,715	4,360	4,525	4,277	4,036	3,687	5,033
Auglaize	25,531	25,107	28,210	22,982	22,524	22,433	20,287	17,647	18,018	24,494
Belmont	10,805	11,644	14,551	12,270	10,375	12,560	12,197	10,653	11,792	14,676
Brown	21,708	25,166	28,527	22,370	21,867	19,063	16,380	16,971	17,104	18,852
Butler	20,758	21,164	25,868	19,288	18,642	19,947	18,915	17,114	18,631	26,902
Carroll	8,276	9,805	10,142	10,139	8,316	9,423	8,514	8,221	8,299	10,818
Champaign	29,921	27,768	34,408	25,025	22,837	25,723	22,798	18,841	15,745	33,027
Clark	26,571	26,786	29,464	22,947	21,225	23,733	20,297	16,711	17,374	24,589
Clermont	16,014	17,946	20,921	16,521	14,597	13,094	13,062	13,091	12,230	14,971
Clinton	38,493	33,538	37,957	32,183	29,279	25,734	27,836	30,457	29,865	34,742
Columbiana	11,376	11,511	12,920	11,433	11,175	11,711	11,060	10,528	10,693	14,160
Coshocton	13,022	15,525	17,151	15,686	13,897	14,580	11,857	11,746	11,539	15,109
Crawford	28,801	27,651	34,786	32,509	27,992	25,244	21,542	18,359	20,304	28,380
Cuyahoga	2,047	2,176	2,627	2,662	3,160	2,728	2,417	1,775	1,953	3,439
Darke	34,228	33,879	42,210	34,423	33,085	31,446	27,923	24,717	25,298	31,506
Defiance	13,747	13,309	16,233	11,411	14,229	12,109	10,921	8,374	10,121	14,196
Delaware	21,726	23,346	26,111	21,128	18,517	20,199	15,773	13,077	14,953	20,665
Erie	6,080	4,021	8,205	8,023	8,471	7,498	6,784	5,400	6,104	8,727
Fairfield	37,733	38,008	41,284	30,043	26,493	28,287	28,392	25,183	26,409	30,307
Fayette	36,132	32,067	41,369	31,705	32,360	27,504	32,639	32,940	29,939	37,624
Franklin	27,162	28,276	29,743	22,639	22,814	26,376	23,596	21,050	23,643	30,405
Fulton	16,711	17,321	21,821	17,300	19,793	18,250	14,627	12,147	13,694	17,977
Gallia	6,540	7,387	9,020	7,480	7,678	7,548	6,938	6,887	7,543	8,555
Geauga	3,326	4,404	4,731	4,076	4,322	3,763	3,073	2,466	3,110	3,859
Greene	25,768	29,709	32,456	21,569	22,009	25,650	24,084	21,429	22,210	32,569
Guernsey	6,497	7,038	9,630	9,100	7,976	9,083	7,213	6,874	7,428	8,916
Hamilton	11,060	12,039	11,884	10,800	10,278	11,398	11,239	9,118	11,606	14,095
Hancock	34,126	37,999	43,340	30,747	31,991	34,148	77,830	25,924	26,723	33,522
Hardin	29,292	25,070	31,491	24,793	22,737	23,395	20,019	14,925	14,039	22,025
Harrison	5,307	6,150	7,741	7,148	6,180	6,778	6,633	6,301	6,559	8,150
Henry	19,022	18,298	17,240	16,778	15,928	18,015	15,268	10,707	13,105	13,931
Highland	33,435	33,687	27,277	29,757	31,145	28,711	25,315	26,547	23,603	26,519
Hocking	5,942	5,967	6,937	6,169	6,647	6,114	5,657	4,986	4,965	6,020
Holmes	18,486	20,049	22,716	20,343	16,146	18,294	16,586	15,540	15,760	21,005
Huron	11,196	13,051	15,701	13,629	12,358	12,015	9,923	8,280	9,100	14,373
Jackson	3,921	4,542	5,411	4,600	4,613	4,446	4,036	3,726	3,909	4,671

Jefferson	6,762	6,836	8,488	8,062	6,694	7,364	7,292	6,866	6,918	8,667
Knox	18,794	21,351	25,911	23,111	18,344	19,121	15,956	13,966	14,420	19,100
Lake	1,295	1,606	1,840	1,774	1,955	1,612	1,336	1,158	1,244	1,525
Lawrence	4,549	4,947	5,478	4,791	4,651	5,116	4,842	4,195	5,193	7,605
Licking	31,544	34,194	38,247	30,425	26,500	29,054	24,851	20,910	21,377	26,266
Logan	26,993	26,795	31,315	23,835	20,246	21,919	17,662	15,034	14,727	25,603
Lorain	6,434	7,799	8,955	7,893	8,128	8,372	6,695	5,597	6,856	9,505
Lucas	7,020	7,369	9,169	7,688	6,054	7,646	5,988	5,424	5,797	7,654
Madison	34,730	34,543	39,594	32,549	26,147	30,443	30,250	26,765	24,081	31,883
Mahoning	7,423	7,747	9,087	8,373	7,507	8,227	7,407	6,413	6,680	8,351
Marion	24,114	21,406	26,489	23,395	21,786	25,192	19,666	17,333	18,386	21,974
Medina	7,994	9,667	11,101	9,479	8,932	9,278	7,136	6,482	6,502	8,465
Meigs	4,094	4,733	5,882	5,205	4,795	5,584	4,766	4,395	5,312	6,389
Mercer	22,384	27,533	31,420	26,462	27,212	28,391	25,420	22,781	23,442	32,358
Miami	16,737	19,122	21,269	14,318	15,631	15,487	14,160	12,097	18,746	18,405
Monroe	5,964	5,469	7,119	6,605	5,344	6,480	6,443	6,439	7,358	7,807
Montgomery	20,740	21,663	23,871	17,230	20,618	20,873	19,402	15,972	16,236	21,916
Morgan	4,552	5,272	7,440	6,525	5,874	7,379	6,234	6,061	6,556	7,344
Morrow	14,156	16,239	18,806	16,357	13,457	12,942	10,203	9,052	10,289	13,017
Muskingum	11,578	13,518	16,037	14,817	13,390	14,379	13,148	11,776	11,681	13,211
Noble	6,733	7,743	10,191	8,684	7,417	8,047	7,467	6,986	7,306	9,296
Ottawa	7,499	9,885	10,917	10,492	9,335	9,759	8,942	7,246	8,292	10,094
Paulding	11,324	8,802	10,049	8,009	10,488	8,896	6,439	5,331	6,531	10,964
Perry	9,201	10,692	12,267	10,243	9,269	10,002	8,736	7,642	7,846	9,695
Pickaway	30,706	29,475	30,628	20,297	27,742	30,124	27,355	23,348	23,690	29,121
Pike	6,795	7,417	8,877	6,680	6,828	7,767	6,588	6,173	6,504	8,677
Portage	6,123	7,614	8,675	7,409	7,321	7,809	6,774	5,674	6,170	7,261
Preble	27,858	31,056	33,693	21,983	23,880	25,837	22,284	21,198	22,355	26,940
Putnam	35,974	34,399	35,755	31,582	33,347	33,019	26,880	22,488	23,997	25,264
Richland	19,451	21,348	25,656	21,619	20,097	19,459	17,584	15,248	16,931	21,251
Ross	26,006	24,136	36,408	21,579	24,892	27,029	26,076	22,680	24,107	29,708
Sandusky	20,339	23,541	23,559	22,255	22,233	22,245	20,258	16,248	19,340	26,136
Scioto	7,420	8,347	7,677	6,992	8,289	7,400	6,537	6,299	6,195	7,600
Seneca	27,644	34,403	40,672	34,654	33,435	31,313	27,654	21,615	25,069	33,048
Shelby	18,815	20,432	26,208	20,320	18,974	19,184	16,883	15,516	18,047	25,296
Stark	21,685	22,508	26,341	24,276	22,611	22,489	22,068	18,247	22,330	25,816
Summit	7,786	9,294	11,056	9,689	9,028	9,281	8,121	7,604	8,371	10,380
Trumbull	5,519	6,579	6,953	6,593	7,800	6,968	5,453	4,832	5,064	6,706
Tuscarawas	12,450	13,477	17,004	15,729	14,859	14,183	13,488	12,396	13,893	16,199
Union	29,010	25,952	28,953	21,977	21,239	22,949	20,669	20,587	20,452	29,889
Van Wert	25,051	22,973	24,963	16,393	22,469	24,872	21,173	17,899	20,499	25,030
Vinton	2,248	3,398	3,324	3,324	3,254	2,930	2,393	2,617	2,441	3,462
Warren	22,537	23,562	28,459	18,649	16,526	20,165	18,611	17,861	20,587	26,035
Washington	6,870	7,608	9,808	7,838	7,739	8,767	8,301	8,295	8,457	10,034
Wayne	24,135	27,255	31,690	27,454	22,709	22,814	20,307	18,667	21,052	25,927
Williams	19,455	16,949	19,888	17,891	19,130	17,194	13,314	10,721	12,846	18,028
Wood	32,500	34,026	37,612	29,694	26,397	25,162	20.653	17,005	19,665	23,242
Wyandot	23,132	25,378	27,400	26,155	23,678	23,930	18,754	14,977	16,538	23,079
Totals	1,489,518	1,549,552	1,794,014	1,455,247	1,407,758	1,437,450	1,331,169	1,139,551	1,205,238	1,562,065

ABSTRACTS FROM REPORTS OF COUNTY AGRICULTURAL SOCIETIES FOR 1900.

TABLE I—COUNTY FAIRS IN OHIO FOR 1900.

COUNTY.	PRESIDENT.	POSTOFFICE.	TREASURER.	POSTOFFICE.
Adams	W. S. Kincaid	West Union	H. W. Dickinson	West Union.
Allen	William Rusler	Lima	George Fetter	Lima.
Ashtabula	O. P. Fobes	Lindenville	C. L. Taylor	Jefferson.
Athens	E. G. Biddison	Athens	W. Scott	Athens.
Auglaize	L. H. Steva	St. Mary's	T. E. Bowsher	Buckland.
Belmont	Robert M. Eaton	St. Clairsville	E. G. Amos	St. Clairsville.
Brown	V. K. Thompson	Georgetown	Ben B. Whiteman	Georgetown.
Butler	J. A. Slade	Hamilton	W. B. Wallace	Oxford.
Carroll	Wm. L. Smeltz, Jr	Carrollton	T. J. Saltsman	Carrollton.
Champaign	C. H. Ganson	Urbana	H. P. Wilson	Urbana.
Clark	S. T. Luse	Clifton	W. J. Stickney	Wiseman.
Clermont	John C. Shaw	Nice	J. O. Rapp	Owensville.
Clinton	J. W. Gustin	Blanchester	C. F. Rice, Jr	Blanchester.
Columbiana	J. W. Hoopes	Salem	B. Y. Brown	Gavers.
Coshocton	J. P. Darling	Nellie	Ed M. Hanlon	Coshocton.
Crawford	J. A. McMichael	Bucyrus	M. Auck	Bucyrus.
East Cuyahoga	L. R. Dunham	Bedford	T. N. Bright	Chagrin Falls.
West Cuyahoga	Wm. Biddulph	Dover	W. J. Poots	Vigil.
Darke	Jacob M. Brown	Arcanum	Ed. Ammon	Gordon.
Delaware	S. H. Cleveland	Delaware	Lewis Slack	Delaware.
Erie	C. W. Taylor	Sandusky	S. C. Prout	Prout.
Fairfield	W. L. Martens	Lancaster	C. B. Whiley	Lancaster.
Fayette	Nye Gregg	Washington C. H	O. S. Mallow	Washington C. H.
Fulton	A. F. Shaffer	Wauseon	W. A. Blake	Wauseon.
Gallia	C. D. Bailey	Gallipolis	G. B. Little	Gallipolis (Box 465).
Geauga	F. D. Hollis	Chardon	H. C. Tuttle	Burton.
Greene	R. E. Corry	Yellow Springs	H. L. Smith	Xenia.
Guernsey	A. J. Clark	Cambridge	R. S. Frame	Washington.

Hamilton.	Jas. L. Orbison	Carthage	E. H. Huffman	Sharonville.
Hancock.	Henry Snyder	Findlay.	Jacob Stark	Findlay.
Hardin	A. G. Ahlefeld	Kenton.	Horton Park	Kenton.
Harrison.	A. T. Elliott	Shortcreek	W. S. Hamilton	Cadiz.
Jefferson	George G. Barger	Smithfield.	Chas. McKinney	Smithfield.
Lawrence	J. P. Eaton	La Belle.	C. J. Reynolds	Proctorville.
Licking	F. B. Dudgeon	Wilkin Run	A. J. Crilly	Newark.
Logan	Isaac C. Miller	Bellefontaine	Wm. R. Niven	Bellefontaine.
Lorain	T. D. Phelon	Huntington.	Frank A. Smith	Elyria.
Madison.	L. W. Kilgore	London.	M. L. Rea	Chrisman.
Mahoning.	North Newton	Boardman.	C. C. Fowler	Canfield.
Marion.	W. L. Morral	De Cliff	D. M. Odaffer	Marion.
Medina	James M. Crawford	Seville	C. E. Hoover	Medina.
Meigs.	P. B. Stanbery	Pomeroy.	John McQuigg	Pomeroy.
Mercer	S. H. Weaver	Early.	J. M. Winter	Celina.
Miami.	W. F. Robbins	Piqua.	D. M. Coppock	Pleasant Hill.
Monroe.	W. C. Mooney	Woodsfield.	W. C. Mooney	Woodsfield.
Montgomery.	J. McLain Smith	Dayton.	Samuel Wampler	Dayton.
Morgan.	John G. Walker	McConnelsville.	J. W. McElhiney	McConnelsville.
Morrow	W. A. Ferguson	Shauck.	J. G. Russell	Mt. Gilead.
Muskingum	M. C. Brookover	Carlwick.	A. F. Vest	Zanesville.
Noble	W. S. Spriggs	Sarahsville.	C. L. Hellyer	Sarahsville.
Ottawa.	T. W. Payne	Gypsum.	G. H. Hyde	Gypsum.
Paulding	Lafayette Paulus	Briceton	W. H. Yant	Paulding.
Perry	T. J. Tracy	New Lexington	Patrick Coyle	New Lexington.
Pike	David Nutt	Beaver.	G W. Baker	Beaver.
Portage	C. R. Doolittle	Streetsboro.	Charles H. Laubert	Ravenna.
Preble	Frank Mitchell	Eaton.	C. F. Brooke, Jr	Eaton.
Putnam	A. L. Paul	Ottawa	C. H. Rice	Ottawa.
Richland	Jerry Needham	Lexington.	John Hale	Pavonia.
Ross.	Clark W. Story	Chillicothe	Theo. Spetnagel	Chillicothe.
Sandusky.	L. Nickel	Fremont	Wm. A. Gabel	Fremont.
Scioto	D. T. Blackburn	Rarden.	W. A. McGeorge	Mount Joy.
Stark	Andrew Pontius	Canton.	H. A. Wise	Canton.
Summit.	Geo. C. Stanford	Boston.	George W. Brewster	Akron.
Trumbull	J. N. Thompson	Warren	C. M. Wilkins	Warren.
Tuscarawas.	John L. Kennedy	New Philadelphia.	V. Wentz	Canal Dover.

TABLE I—COUNTY FAIRS IN OHIO FOR 1900—Concluded.

COUNTY.	PRESIDENT.	POSTOFFICE.	TREASURER.	POSTOFFICE.
Union	John C. Kintner	Milford Center	C. S. Chapman	Marysville.
Van Wert	J. S. Stuckey	Van Wert	E. B. Gilliland	Van Wert.
Warren	Huse Bone	Lebanon.	F. M. Cunningham	Lebanon.
Washington.	Ed Flanders.	Marietta.	J. H. McConnell	Marietta.
Wayne	J. C. Sidle	Blackleyville.	W. A. Wilson	Wooster.
Williams	C. R. Betts.	Stryker	C. R. Fyke	Pulaski.
Wood	M. A. Matheney	Custar	Hugh Stewart	Dunbridge.
Wyandot	C. D. Hare	Upper Sandusky	W. J. Lowry	Upper Sandusky.

COUNTY FAIRS IN OHIO FOR 1900, WITH TIME AND PLACE.

COUNTY.	SECRETARY.	POSTOFFICE.	TIME OF FAIR.	PLACE OF FAIR.
Adams	T. W. Ellison	West Union	September 11, 12, 13, 14	West Union.
Allen	T. B. Bowersock	Lima	September 24, 25, 26, 27, 28	Lima.
Ashtabula	Chas. C. Babcock	Jefferson	August 21, 22, 23	Jefferson.
Athens	C. H. Porter	Athens	September 25, 26, 27	Athens.
Auglaize	A. E. Shaffer	Wapakoneta	October 2, 3, 4, 5, 6	Wapakoneta.
Belmont	T. C. Ayers	St. Clairsville	September 5, 6, 7	St. Clairsville.
Brown	J. W. Hedrick	Russelville	October 2, 3, 4, 5	Georgetown.
Butler	W. A. Shafor	Hamilton	October 1, 2, 3, 4, 5	Hamilton.
Carroll	C. A. Tope	Carrollton	October 9, 10, 11, 12	Carrollton.
Champaign	J. W. Crowl	Urbana	August 14, 15, 16, 17	Urbana.
Clark	J. S. Bird	Springfield	August 21, 22, 23, 24	Springfield.
Clermont	John Rowan	Blowville	August 28, 29, 30, 31	Boston (Owensville P. O.)
Clinton	J. W. McFadden	Blanchester	August 21, 22, 23, 24	Blanchester.
Columbiana	E. F. Moore	Lisbon	September 11, 12, 13	Lisbon.
Coshocton	Robert Boyd	Coshocton	October 9, 10, 11, 12	Coshocton.
Crawford	G. W. Miller	Bucyrus	October 9, 10, 11, 12	Bucyrus.
East Cuyahoga	Tryon Bailey	Chagrin Falls	September 11, 12, 13, 14	Chagrin Falls.
West Cuyahoga	O. R. Stone	Berea	September 25, 26, 27	Berea.
Darke	T. C. Maher	Greenville	August 27, 28, 29, 30, 31	Greenville.
Delaware	W. S. Pollock	Delaware	September 25, 26, 27, 28	Delaware.
Erie	John T. Mack	Sandusky	September 11, 12, 13, 14	Sandusky.
Fairfield	W. T. McClenoghan	Lancaster	October 10, 11, 12, 13	Lancaster.
Fayette	N. B. Hall	Washington C. H.	August 14, 15, 16, 17	Washington C. H.
Fulton	Thomas Mikesell	Wauseon	September 18, 19, 20, 21	Ottokee.
Gallia	G. A. Little	Gallipolis (Box 11)	August 28, 29, 30, 31	Gallipolis.
Geauga	P. W. Parmelee	Burton	September 4, 5, 6, 7	Burton.
Greene	R. R. Grieve	Xenia	August 7, 8, 9, 10	Xenia.
Guernsey	H. D. McCulloch	Washington	September 25, 26, 27, 28	Washington.
Hamilton	D. L. Sampson	Silverton	August 14, 15, 16, 17, 18	Carthage.
Hancock	Wm. Demland	Findlay	September 18, 19, 20, 21, 22	Findlay.
Hardin	W. M. Cooney	Kenton	August 21, 22, 23, 24	Kenton.
Harrison	J. G. Milliken	Cadiz	October 2, 3, 4	Cadiz.

COUNTY FAIRS IN OHIO FOR 1900, ETC.—Concluded.

COUNTY.	POSTOFFICE.	POSTOFFICE.	TIME OF FAIR.	PLACE OF FAIR.
Jefferson	J. O. Hayne	Smithfield	September 26, 27, 28	Smithfield.
Lawrence	W. W. Reckard	Proctorville	September 12, 13, 14	Proctorville.
Licking	J. M. Farmer	Newark	October 2, 3, 4, 5	Newark.
Logan	E. Pat. Chamberlin	Bellefontaine	October 2, 3, 4, 5	Bellefontaine.
Lorain	W. B. Johnston	Elyria	September 11, 12, 13, 14	Elyria.
Madison	E. B. Pancake	London	August 28, 29, 30, 31	London.
Mahoning	B. L. Manchester	Hickory	September 25, 26, 27	Canfield.
Marion	J. E. Waddell	Marion	September 25, 26, 27, 28	Marion.
Medina	Hiram Goodwin	Medina	September 4, 5, 6	Medina.
Meigs	J. W. Shaver	Pomeroy	September 18, 19, 20, 21	Rock Springs.
Mercer	C. W. Halfhill	Mercer	August 20, 21, 22, 23, 24	Celina.
Miami	W. I. Tenney	Troy	September 24, 25, 26, 27, 28	Troy.
Monroe	Geo. P. Dorr	Woodsfield	September 4, 5, 6	Woodsfield.
Montgomery	W. J. Ferguson	Dayton	September 11, 12, 13, 14	Dayton.
Morgan	P. H. Tannehill	McConnelsville	September 4, 5, 6	McConnelsville.
Morrow	O. J. Miller	Mt. Gilead	October 2, 3, 4, 5	Mt. Gilead.
Muskingum	J. T. Roberts	White Cottage	September 10, 11, 12, 13, 14	Zanesville.
Noble	Geo. M. Graham	Sarahsville	September 18, 19, 20	Sarahsville.
Ottawa	J. H. McRitchie	Port Clinton	September 18, 19, 20	Port Clinton.
Paulding	W. B. Jackson	Paulding	September 18, 19, 20, 21	Paulding.
Perry	Chas. C. Chappelear	New Lexington	September 19, 20, 21, 22	New Lexington.
Pike	A. H. Wilking	Beaver	October 11, 12	Beaver.
Portage	Lafayette Smith	Ravenna	August 28, 29, 30, 31	Ravenna.
Preble	Henry H. Farr	Eaton	September 17, 18, 19, 20, 21	Eaton.
Putnam	A. P. Sandles	Ottawa	October 2, 3, 4, 5, 6	Ottawa.
Richland	W. H. Gifford	Mansfield	September 11, 12, 13, 14	Mansfield.
Ross	Addison P. Minshall	Chillicothe	August 7, 8, 9, 10	Chillicothe.
Sandusky	J. C. Overmyer	Fremont	October 2, 3, 4, 5	Fremont.
Scioto	W. A. McGeorge	Mount Joy	August 29, 30, 31	Mount Joy.
Shelby	J. E. Russell	Sidney	September 4, 5, 6, 7	Sidney.
Stark	J. H. Lehman	Canton	September 4, 5, 6, 7	Canton.

Summit	Albert Hale	Akron or Mogadore	October 2, 3, 4, 5	Akron.
Trumbull	Jas. L. Kennedy	Warren	September 4, 5, 6	Warren.
Tuscarawas	H. W. Streb	Canal Dover	September 11, 12, 13, 14	Canal Dover.
Union	W. M. Titsworth	Marysville	October 2, 3, 4, 5	Marysville.
Van Wert	O. D. Swartout	Van Wert	September 11, 12, 13, 14	Van Wert.
Warren	George W. Carey	Lebanon	September 18, 19, 20, 21	Lebanon.
Washington	Henry G. Bohl	Marietta	September 18, 19, 20, 21	Marietta.
Wayne	I. N. Kinney	Wooster	September 11, 12, 13	Wooster.
Williams	C. C. Lattanner	Montpelier	September 11, 12, 13, 14	Montpelier.
Wood	W. S. Haskell	Bowling Green	September 25, 26, 27, 28, 29	Bowling Green.
Wyandot	Oscar Billhardt	Upper Sandusky	September 18, 19, 20, 21	Upper Sandusky.

TABLE II—ENTRIES AND AWARDS.

Counties.	Short Horns.			Devons.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	18	$44 00	$44 00	......	....	....
Allen	15	70 50	40 00	......	....	....
Ashtabula	18	52 00	41 00	8	$52 00	....
Athens	11	50 00	34 00	......	50 00	....
Auglaize	......	....	....	......	....	....
Belmont	2	31 00	5 00	......	31 00	....
Brown	26	60 00	57 00	......	....	....
Butler	11	128 00	98 00	......	....	....
Carroll	18	66 00	56 00	......	....	....
Champaign	30	76 00	71 00	......	....	....
Clark	12	70 00	43 00	11	70 00	$38 00
Clermont	10	68 00	49 00	......	....	....
Clinton	16	37 00	33 00	......	....	....
Columbiana	21	62 00	55 00	......	....	....
Coshocton	21	88 00	81 50	15	88 00	61 00
Crawford	15	41 00	40 00	......	....	....
West Cuyahoga	6	41 25	12 50	......	....	....
East Cuyahoga	......	35 50	....	9	35 50	25 50
Darke	15	64 00	52 00	......	....	....
Delaware	10	41 00	18 00	......	....	....
Erie	......	58 50	....	......	....	....
Fairfield	33	91 00	91 00	......	....	....
Fulton	8	63 00	33 00	......	63 00	....
Geauga	24	41 00	30 00	16	41 00	28 00
Greene	......	80 00	....	[1]57	320 00	276 00
Guernsey	8	68 00	34 00	4	66 00	19 00
Hamilton	14	120 00	93 00	......	....	....
Hancock	23	[2]462 00	[2]212 50	......	....	....
Harrison	[3]27	74 00	71 00	See Short Horns.		
Jefferson	7	46 00	24 00	......	....	....
Lawrence	7	34 50	18 50	......	....	....
Licking	18	85 00	76 00	14	76 00	57 00
Logan	[4]16	69 00	57 00	......	....	....
Lorain	10	64 00	64 00	......	64 00	....
Madison	[5]22	69 00	66 00	......	....	....
Mahoning	[6]19	83 00	72 00	......	....	....
Marion	6	65 00	32 00	......	....	....
Medina	13	66 00	27 75	......	....	....
Meigs	......	....	....	......	....	....
Mercer	46	77 00	75 00	......	....	....
Miami	4	72 00	19 00	10	72 00	30 00
Monroe	12	47 00	37 00	......	47 00	....
Montgomery	17	84 00	71 00	30	84 00	84 00
Morgan	13	37 00	21 00	......	35 00	....
Morrow	11	43 00	28 00	......	....	....
Muskingum	......	....	....	......	....	....
Noble	2	35 50	3 00	......	....	....
Ottawa	......	[2]66 76	....	......	....	....
Paulding	13	66 00	40 50	......	....	....
Perry	2	36 50	5 50	......	36 50	....
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Short Horns.			Devons.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	15	42 00	33 00	9	42 00	25 00
Preble	10	86 00	52 00	[7]24	86 00	82 00
Putnam	11	84 00	40 00	......	84 00	....
Richland	10	48 00	30 00	......	48 00	....
Ross	16	38 00	34 00	......	....	....
Sandusky	31	96 00	85 00	......	....	....
Scioto	13	77 00	41 50	......	....	....
Shelby	15	98 00	55 00	......	81 00	....
Stark	22	90 00	77 00	......	....	....
Summit	9	132 50	58 50	......	....	....
Trumbull	19	58 00	48 00	......	....	....
Tuscarawas	11	52 00	34 00	......	....	....
Union	18	73 00	55 10	......	....	....
Van Wert	32	86 00	82 00	13	68 00	65 00
Warren	......	49 00	....	......	43 00	....
Washington	3	40 00	....	......	40 00	....
Wayne	22	42 00	33 00	......	....	....
Williams	[5]21	58 00	55 00	......	....	....
Wood	18	62 00	46 00	......	62 00	....
Wyandot	11	50 00	32 00	......	....	....
Totals	957	$4,690 51	$3,022 85	220	$1,785 00	$790 50

[1] Includes all Polled Breeds.
[2] Includes all Cattle.
[3] Includes Devons and Herefords.
[4] Includes Polled Durhams and Herefords.
[5] Includes Polled Durhams.
[6] Includes Herefords.
[7] Includes Jerseys.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	All Polled Breeds.			Herefords.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	4	$44 00	$19 00	8	$44 00	$38 00
Allen	23	211 50	85 50	21	70 50	53 00
Ashtabula	13	52 00	36 00	......	....	....
Athens	......	50 00	....	1	50 00	3 00
Auglaize	36	140 00	136 00	17	62 00	48 00
Belmont	......	31 00	....	......	31 00	....
Brown	15	60 00	45 00	8	60 00	50 00
Butler	13	106 00	86 00	......	....	....
Carroll	......	10 00	....	......	....	....
Champaign	15	152 00	63 00	......	....	....
Clark	39	280 00	139 00	......	70 00	....
Clermont	7	68 00	37 00	8	68 00	39 00
Clinton	......	....	....	......	....	....
Columbiana	......	62 00	....	......	....	....
Coshocton	25	88 00	75 50	19	88 00	77 00
Crawford	17	65 00	40 00	......	31 00	....
West Cuyahoga	10	41 25	28 00	7	40 75	17 25
East Cuyahoga	2	35 50	7 00	......	35 50	....
Darke	32	192 00	156 00	......	64 00	....
Delaware	9	41 00	17 00	......	....	....
Erie	......	117 00	....	......	58 50	....
Fairfield	28	91 00	88 00	5	91 00	26 00
Fulton	27	126 00	52 50	4	63 00	13 50
Geauga	18	41 00	27 00	......	....	....
Greene	......	See Devons.		......	....	....
Guernsey	8	66 00	32 00	6	66 00	26 00
Hamilton	49	240 00	222 00	18	120 00	108 00
Hancock	31	See Short Horns.		......	....	....
Harrison	......	56 00	....	See Short Horns.		
Jefferson	......	....	....	......	46 00	....
Lawrence	6	34 50	18 00	......	....	....
Licking	6	76 00	52 00	......	....	....
Logan	12	69 00	41 50	See Short Horns.		
Lorain	......	64 00	....	10	64 00	64 00
Madison	11	138 00	51 50	......	....	....
Mahoning	1	83 00	5 00	See Short Horns.		
Marion	......	65 00	....	......	37 00	....
Medina	......	....	....	......	....	....
Meigs	......	....	....	......	....	....
Mercer	90	144 00	140 00	......	....	....
Miami	35	288 00	160 00	13	72 00	47 00
Monroe	2	47 00	9 00	......	....	....
Montgomery	11	84 00	56 00	......	....	....
Morgan	......	37 00	....	7	37 00	21 00
Morrow	13	129 00	35 00	......	43 00	....
Muskingum	7	85 00	50 00	......	....	....
Noble	......	....	....	......	....	....
Ottawa	......	....	....	......	....	....
Paulding	......	54 50	....	......	55 50	....
Perry	......	36 50	....	......	....	....
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	All Polled Breeds.			Herefords.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered,	Amount awarded.
Portage	......	84 00	....	......	42 00	....
Preble	33	258 00	169 00	10	86 00	56 00
Putnam	28	84 00	80 00	......	84 00	....
Richland	13	48 00	37 00	4	48 00	14 00
Ross	8	122 00	21 00	......	38 00	....
Sandusky	25	96 00	81 00	24	96 00	70 00
Scioto	......	....	....	......	....	....
Shelby	6	98 00	17 00	......	98 00	....
Stark	15	90 00	65 00	......	90 00	....
Summit	......	....	....	......	....	....
Trumbull	......	[1]58 00	....	See Polled Breeds.		
Tuscarawas	12	104 00	39 00	......	52 00	....
Union	17	73 00	65 40	9	46 00	25 20
Van Wert	24	136 00	129 00	13	86 00	69 00
Warren	......	43 00	....	......	....	....
Washington	4	40 00	7 00	......	40 00	....
Wayne	6	42 00	19 50	......	....	....
Williams	7	116 00	33 00	......	58 00	....
Wood	26	186 00	93 00	......	62 00	....
Wyandot	6	50 00	20 00	4	50 00	12 00
Totals	845	$5,628 75	$2,885 40	216	$2,443 75	$876 95

[1] Includes Herefords.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Jerseys.			Holsteins.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	8	$44 00	$35 00	......	$44 00	....
Allen	16	70 50	59 00	......	....	....
Ashtabula	33	52 00	41 00	8	52 00	26 00
Athens	14	50 00	35 00	10	50 00	32 00
Auglaize	21	62 00	62 00	......	....	....
Belmont	2	31 00	....	......	31 00	....
Brown	18	60 00	60 00	......	....	....
Butler	26	105 00	105 00	11	89 00	81 00
Carroll	19	50 00	20 00	23	50 00	31 00
Champaign	46	76 00	73 00	17	76 00	66 00
Clark	20	70 00	63 00	......	70 00	....
Clermont	27	73 00	65 00	......	....	....
Clinton	19	36 00	34 00	7	31 00	14 00
Columbiana	15	62 00	45 00	......	62 00	....
Coshocton	27	88 00	80 50	......	88 00	....
Crawford	18	36 00	36 00	10	34 00	33 00
West Cuyahoga	28	41 25	41 25	21	41 25	30 75
East Cuyahoga	10	35 50	27 00	17	35 50	34 00
Darke	40	64 00	54 00	20	64 00	57 00
Delaware	[1]14	41 00	30 00	See Jerseys.		
Erie	11	58 50	26 50	8	58 50	31 50
Fairfield	15	91 00	65 00	......	....	....
Fulton	15	63 00	52 50	29	63 00	63 00
Geauga	23	41 00	24 50	47	41 00	38 50
Greene	[1]35	81 00	80 00	See Jerseys.		
Guernsey	12	66 00	52 00	......	....	....
Hamilton	33	120 00	114 00	......	....	....
Hancock	3	See Short Horns.		15	See Short Horns.	
Harrison	......	....	....	......	....	....
Jefferson	12*	46 00	37 00	19	46 00	38 00
Lawrence	4	34 50	11 00	......	....	....
Licking	19	75 00	57 00	......	....	....
Logan	34	69 00	69 00	......	....	....
Lorain	37	64 00	64 00	24	64 00	64 00
Madison	22	69 00	67 00	6	69 00	31 00
Mahoning	15	83 00	71 00	11	83 00	51 00
Marion	2	37 00	6 00	5	37 00	22 00
Medina	46	75 00	63 25	10	45 75	25 00
Meigs	19	45 00	45 00	......	....	....
Mercer	34	77 00	60 00	......	....	....
Miami	9	72 00	41 00	11	72 00	47 00
Monroe	5	47 00	21 00	......	47 00	....
Montgomery	19	84 00	82 00	11	84 00	59 00
Morgan	1	35 00	3 00	......	37 00	....
Morrow	6	43 00	17 00	......	43 00	....
Muskingum	15	85 00	58 25	......	....	....
Noble	......	....	....	......	....	....
Ottawa	......	....	....	......	....	....
Paulding	......	28 50	....	9	64 00	18 75
Perry	1	36 50	5 00	......	36 50	....
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Jerseys.			Holsteins.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	4	42 00	15 00	5	42 00	18 00
Preble		See Devons.		14	86 00	77 00
Putnam	......	84 00	....	8	84 00	52 00
Richland	25	76 00	70 00	......	....	....
Ross	10	38 00	24 00	12	38 00	29 00
Sandusky	20	96 00	75 00	......	96 00	....
Scioto	11	77 00	27 50	......	....	....
Shelby	6	98 00	25 00	1	98 00	4 00
Stark	16	90 00	76 00	......	90 00	....
Summit	31	132 50	132 50	35	132 50	119 50
Trumbull	26	58 00	55 00	[2]31	58 00	49 00
Tuscarawas	......	52 00	....	......	52 00	....
Union	13	46 00	35 10	12	46 00	29 70
Van Wert	12	86 00	69 00	12	86 00	86 00
Warren	11	46 00	34 00	......	....	....
Washington	[3]10	40 00	19 50	11	40 00	25 00
Wayne	15	42 00	34 00	......	....	....
Williams	13	58 00	40 00	9	58 00	33 00
Wood	[4]13	62 00	48 00	7	62 00	29 00
Wyandot	3	50 00	12 00	6	50 00	23 00
Totals	1,107	$4,046 75	$2,949 35	512	$2,827 00	$1,467 70

[1] Includes Holsteins.
[2] Includes Ayrshires.
[3] Includes Alderneys.
[4] Includes Guernseys.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Ayrshires			Guernseys.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded
Adams	......	....	....	......	....	....
Allen	......	....	....	......	....	....
Ashtabula	......	....	....	......	....	....
Athens	......	....	....	......	....	....
Auglaize	......	....	....	......	....	....
Belmont	......	....	....	......	....	....
Brown	......	....	....	......	....	....
Butler	......	....	....	......	....	....
Carroll	......	....	....	......	....	....
Champaign	......	....	....	......	....	....
Clark	......	70 00	....	......	....	....
Clermont	......	....	....	......	....	....
Clinton	......	....	....	......	....	....
Columbiana	......	....	....	......	....	....
Coshocton	......	....	....	......	....	....
Crawford	......	....	....	......	....	....
West Cuyahoga	15	41 25	33 00	......	....	....
East Cuyahoga	12	35 50	30 00	......	35 50	....
Darke	......	....	....	......	....	....
Delaware	......	....	....	......	....	....
Erie	......	58 50	....	......	....	....
Fairfield	......	....	....	......	....	....
Fulton	13	63 00	53 00	......	....	....
Geauga	18	41 00	34 00	......	....	....
Greene	......	....	....	......	....	....
Guernsey	......	....	....	......	....	....
Hamilton	......	....	....	......	....	....
Hancock	......	....	....	......	....	....
Harrison	......	....	....	......	....	....
Jefferson	......	....	....	......	....	....
Lawrence	......	....	....	......	....	....
Licking	......	....	....	......	....	....
Logan	......	....	....	......	....	....
Lorain	28	64 00	64 00	......	64 00	....
Madison	......	....	....	......	....	....
Mahoning	......	....	....	......	....	....
Marion	......	....	....	......	....	....
Medina	11	45 75	50 00	......	....	....
Meigs	......	....	....	......	....	....
Mercer	......	....	....	......	....	....
Miami	......	....	....	......	72 00	....
Monroe	......	....	....	......	....	....
Montgomery	[1]14	84 00	75 00	See Ayrshires.		
Morgan	......	35 00	....	......	....	....
Morrow	......	....	....	......	....	....
Muskingum	......	....	....	......	....	....
Noble	......	....	....	......	....	....
Ottawa	......	....	....	......	....	....
Paulding	......	....	....	......	....	....
Perry	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Ayrshires			Guernseys.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded
Pike						
Portage	5	42 00	16 00			
Preble						
Putnam						
Richland						
Ross						
Sandusky				11	48 00	33 00
Scioto						
Shelby		98 00				
Stark						
Summit						
Trumbull	See Holsteins.					
Tuscarawas						
Union						
Van Wert	10	68 00		10	68 00	68 00
Warren						
Washington		40 00				
Wayne						
Williams						
Wood		62 00				
Wyandot						
Totals	126	$848 00	$355 00	21	$287 50	$101 00

[1] Includes Guernseys.

TABLE II.—ENTRIES AND AWARDS—Continued.

Counties.	All Other Pure Breeds.			Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	....	....	....	....	....	....
Allen	5	$24 50	$15 00	....	....	....
Ashtabula	46	133 00	79 50	6	$20 00	$20 00
Athens	....	50 00	....	2	16 00	16 00
Auglaize	....	....	....	19	50 00	37 00
Belmont	....	....	....	....	6 00	....
Brown	....	....	....	....	....	....
Butler	....	....	....	....	....	....
Carroll	104	....	21 75	....	....	....
Champaign	....	....	....	....	....	....
Clark	18	70 00	63 00	26	80 00	80 00
Clermont	....	....	....	2	15 00	15 00
Clinton	....	....	....	11	39 00	39 00
Columbiana	....	....	....	....	....	....
Coshocton	35	176 00	138 50	38	192 00	151 00
Crawford	....	....	....	23	44 00	44 00
West Cuyahoga	....	....	....	....	....	....
East Cuyahoga	....	....	....	10	20 00	20 00
Darke	....	....	....	29	280 00	220 00
Delaware	15	18 00	8 00	3	16 00	12 00
Erie	....	....	....	....	....	....
Fairfield	....	....	....	17	152 00	152 00
Fulton	14	30 00	11 00	....	....	....
Geauga	133	59 00	47 50	44	50 00	44 00
Greene	....	....	....	11	90 00	75 00
Guernsey	6	29 00	14 00	4	55 00	40 00
Hamilton	150	265 00	265 00	....	....	....
Hancock	....	....	....	....	....	....
Harrison	15	33 00	10 00	7	31 00	24 00
Jefferson	....	....	....	5	54 00	48 00
Lawrence	....	....	....	....	....	....
Licking	....	....	....	20	58 00	58 00
Logan	115	54 00	27 00	2	76 00	....
Lorain	....	....	....	....	....	....
Madison	....	....	....	14	80 00	80 00
Mahoning	....	....	....	6	50 00	50 00
Marion	36	65 00	44 00	17	82 00	82 00
Medina	30	53 50	52 00	23	50 00	50 00
Meigs	20	58 00	58 00	....	....	....
Mercer	64	154 00	104 00	4	40 00	30 00
Miami	....	....	....	30	140 00	75 00
Monroe	9	47 00	21 00	....	....	....
Montgomery	44	151 00	151 00	22	100 00	100 00
Morgan	....	....	....	10	9 00	9 00
Morrow	....	....	....	23	80 00	80 00
Muskingum	....	....	....	....	....	....
Noble	....	....	....	....	....	....
Ottawa	....	....	....	....	....	....
Paulding	4	25 50	12 75	8	50 50	43 00
Perry	....	....	....	1	10 00	....
Pike	....	....	....	....	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	All Other Pure Breeds.			Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage				6	15 00	11 00
Preble	20	46 00	46 00	26	10 00	10 00
Putnam				17	118 00	34 00
Richland				7	28 00	28 00
Ross				15	69 00	59 00
Sandusky	9	40 00	31 00	7	30 00	24 00
Scioto						
Shelby				2	10 00	
Stark	17	90 00	48 00			
Summit						
Trumbull				4	20 00	20 00
Tuscarawas	11	52 00	35 00	3	70 00	30 00
Union						
Van Wert				28	90 00	90 00
Warren				5	53 00	43 00
Washington	10	28 50	8 00	12	32 00	24 00
Wayne				19	44 00	38 00
Williams				7	20 00	20 00
Wood	13	74 00	42 00	20	93 00	93 00
Wyandot				2	8 00	8 00
Totals	613	$1,826 00	$1,353 00	617	$2,745 50	$2,226 00

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[1] Includes grade Cattle.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Fat Cattle and Work Oxen.			Thoroughbreds (Running Horses).		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	9	$24 00	$22 00			
Allen						
Ashtabula	1	26 00	5 00			
Athens	2	35 00	5 00			
Auglaize				6	$58 00	$23 00
Belmont		11 00		2	25 00	3 00
Brown	8	13 00	13 00			
Butler				8	200 00	200 00
Carroll	2	14 00	6 00			
Champaign						
Clark		42 00			67 00	
Clermont						
Clinton	4	15 00	15 00	8	225 00	225 00
Columbiana				48	114 00	102 00
Coshocton	2	20 00	6 00	14	95 50	61 50
Crawford						
West Cuyahoga	1	13 50				
East Cuyahoga	8	31 50	26 50			
Darke	2	30 00	27 00	1	25 00	20 00
Delaware	3	28 00	9 00			
Erie					28 50	
Fairfield						
Fulton		15 00				
Geauga	14	46 00	30 00			
Greene						
Guernsey						
Hamilton				14	400 00	200 00
Hancock						
Harrison						
Jefferson	8	26 00	20 00			
Lawrence	4	28 00	17 00			
Licking	3	41 00	16 00	9	73 00	35 00
Logan	2	17 00	7 50			
Lorain	3	20 00	20 00			
Madison				4	71 00	17 00
Mahoning						
Marion	5	21 00	21 00			
Medina						
Meigs						
Mercer				6	100 00	24 00
Miami						
Monroe		16 00				
Montgomery	14	100 00	100 00			
Morgan		56 00				
Morrow						
Muskingum						
Noble						
Ottawa						
Paulding		27 00		5	27 00	27 00
Perry	5	26 00	12 00			

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Fat Cattle and Work Oxen.			Thoroughbreds (Running Horses).		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike						
Portage		35 00				
Preble				9	275 00	233 75
Putnam	3	21 00	8 00			
Richland				6	225 00	225 00
Ross						
Sandusky	5	23 00	21 00			
Scioto				4	100 00	100 00
Shelby						
Stark						
Summit						
Trumbull						
Tuscarawas						
Union						
Van Wert				5	108 00	30 00
Warren				24	265 00	275 00
Washington	3	10 00	3 00	5	43 50	12 00
Wayne						
Williams						
Wood	2	47 00	5 00	12	77 00	46 00
Wyandot				3	75 00	45 00
Totals	113	$878 00	$415 00	193	$2,677 50	$1,904 25

TABLE 11—ENTRIES AND AWARDS—Continued.

Counties.	Horses—Roadsters.			Horses—General Purpose.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	37	$225 00	$216 00	68	$168 00	$134 00
Allen	18	49 00	36 00	6	46 50	19 00
Ashtabula	45	94 00	69 00	22	94 00	52 00
Athens	45	126 00	58 00	26	59 00	48 00
Auglaize	12	59 00	47 00	29	59 00	59 00
Belmont	25	72 00	42 50	26	62 00	32 50
Brown	20	90 00	80 00	57	121 00	121 00
Butler	96	198 00	195 00	96	212 00	212 00
Carroll	38	92 00	77 00	35	92 00	77 00
Champaign	108	132 00	115 00	40	74 00	49 00
Clark	41	174 00	117 00	9	44 00	10 00
Clermont	41	117 00	106 00	107	150 00	150 00
Clinton	26	63 00	58 00	31	68 00	66 00
Columbiana	128	114 00	67 00	14	114 00	49 00
Coshocton	48	156 00	127 50	43	141 00	109 00
Crawford	31	100 00	82 00	13	75 00	33 00
West Cuyahoga	15	51 00	29 50	9	53 00	18 00
East Cuyahoga	41	47 00	45 50	39	84 50	60 00
Darke	70	147 00	125 00	28	135 00	110 00
Delaware	......	....	....	7	57 00	18 00
Erie	14	86 00	41 50	32	86 00	18 00
Fairfield	73	150 00	135 00	62	150 00	143 00
Fulton	29	154 50	82 50	14	70 50	23 00
Geauga	60	92 50	59 25	54	94 00	66 00
Greene	48	101 00	95 00	28	88 00	78 00
Guernsey	35	93 00	77 00	24	91 00	81 00
Hamilton	88	147 00	135 00	78	171 00	154 00
Hancock	18	[1]810 00	[1]355 00	18	See Roadsters.	
Harrison	61	61 00	61 00	......	....	....
Jefferson	40	127 00	96 00	25	68 00	58 00
Lawrence	3	47 50	13 00	9	47 50	25 00
Licking	67	246 00	209 00	26	102 00	77 00
Logan	106	142 00	167 50	70	117 00	101 00
Lorain	23	172 00	172 00	48	172 00	172 00
Madison	56	104 00	100 00	......	....	....
Mahoning	47	179 00	99 00	18	107 00	69 00
Marion	42	172 00	95 00	26	67 00	54 00
Medina	71	83 25	78 00	......	....	....
Meigs	29	92 00	92 00	......	....	....
Mercer	38	100 00	90 00	42	100 00	88 00
Miami	78	207 00	184 00	47	174 00	130 00
Monroe	......	....	....	9	38 00	23 00
Montgomery	29	121 00	88 00	16	73 50	34 50
Morgan	19	67 00	27 00	25	62 00	31 00
Morrow	54	160 00	104 00	9	15 00	15 00
Muskingum	30	140 00	85 75	31	140 00	82 75
Noble	12	71 25	23 00	10	67 50	38 50
Ottawa	......	[1]288 50	....	......	....	....
Paulding	12	79 50	45 00	5	77 00	3 00
Perry	2	39 00	3 00	11	39 00	26 00
Pike	2	6 00	6 00	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Horses—Roadsters.			Horses—General Purpose.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	13	74 50	30 00	14	74 50	28 00
Preble	45	134 00	116 00	51	134 00	131 00
Putnam	89	286 00	169 50	39	125 00	83 00
Richland	36	108 00	66 00	......	....	....
Ross	20	104 00	60 00	14	52 00	48 00
Sandusky	36	192 00	91 00	43	142 00	90 00
Scioto	13	60 00	38 50	......	....	....
Shelby	35	133 00	76 00	31	130 00	67 00
Stark	75	296 00	245 00	37	90 00	90 00
Summit	41	152 00	130 00	25	85 50	56 50
Trumbull	57	74 00	66 00	22	74 00	49 00
Tuscarawas	21	128 00	66 00	13	68 00	40 00
Union	91	138 00	119 40	......	....	....
Van Wert	16	98 00	77 00	18	98 00	89 00
Warren	34	92 00	85 00	33	108 00	95 00
Washington	14	67 50	27 50	13	61 00	26 00
Wayne	50	119 00	91 00	11	57 00	22 00
Williams	21	79 50	59 35	30	44 00	42 00
Wood	53	120 00	93 00	......	....	....
Wyandot	16	86 00	37 00	2	72 00	11 00
Totals	2,847	$8,986 50	$6,254 75	1,838	$5,541 00	$3,984 25

[1] Includes all Horses.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Draft Horses, all Classes.			Coach Horses, all Classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams.	40	$167 00	$127 00	5	$19 00	$19 00
Allen.	26	238 50	90 50	.....	....	....
Ashtabula.	32	94 00	56 00	.....	....	....
Athens.	18	59 00	35 00	8	60 00	23 00
Auglaize.	34	118 00	68 00	2	59 00	14 00
Belmont.	12	61 00	21 00	.....	....	....
Brown.	45	121 00	110 00	8	35 00	35 00
Butler.	21	119 00	77 00	61	156 00	131 00
Carroll.	27	92 00	60 00	.....	....	....
Champaign.	59	138 00	102 00	.....	....	....
Clark.	34	224 00	113 00	3	89 00	14 00
Clermont.	55	153 00	124 00	.....	....	....
Clinton.	17	50 00	33 00	.....	....	....
Columbiana.	.....	....	....	.....	....	....
Coshocton.	28	218 00	115 00	.....	....	....
Crawford.	14	123 00	52 00	.....	....	....
West Cuyahoga.	14	49 00	33 50	5	49 00	12 00
East Cuyahoga.	15	84 50	40 50	.....	....	....
Darke	39	240 00	166 00	16	135 00	121 00
Delaware.	31	114 00	62 00	.....	....	....
Erie.	9	86 00	21 50	4	48 50	8 00
Fairfield	51	150 00	140 00	.....	....	....
Fulton.	40	234 00	104 00	.....	82 50	....
Geauga.	31	70 50	45 75	.....	....	....
Greene.	17	112 00	84 00	.....	....	....
Guernsey	24	92 00	63 00	.....	....	....
Hamilton.	.....	....	....	.....	....	....
Hancock.	20	See Roadsters.		8	See Roadsters.	
Harrison.	33	51 00	47 00	49	54 00	54 00
Jefferson.	26	135 00	98 00	4	67 00	25 00
Lawrence.	6	47 50	16 00	.....	....	....
Licking.	17	102 00	67 00	.....	....	....
Logan.	53	108 00	80 50	.....	....	....
Lorain.	18	244 00	244 00	12	172 00	172 00
Madison.	34	221 00	127 50	33	83 00	68 50
Mahoning.	16	119 00	53 00	.....	....	....
Marion.	114	204 00	102 00	12	20 00	20 00
Medina.	.....	....	....	67	73 75	67 25
Meigs.	26	88 00	88 00	4	23 00	23 00
Mercer.	18	100 00	38 00	21	100 00	32 00
Miami.	57	306 00	179 00	26	175 00	119 00
Monroe.	8	36 00	30 00	.....	....	....
Montgomery.	17	90 00	61 50	13	116 50	47 50
Morgan.	14	66 00	25 00	.....	....	....
Morrow.	26	221 00	74 00	.....	....	....
Muskingum.	26	140 00	103 25	.....	....	....
Noble.	8	34 50	18 50	7	20 00	17 50
Ottawa.	.....	....	....	.....	....	....
Paulding.	8	140 00	31 50	1	12 00	6 00
Perry.	7	39 00	10 50	.....	....	....
Pike.	2	6 00	6 00	.....	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Draft Horses, all Classes.			Coach Horses, all Classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	10	74 50	29 00	......	....	....
Preble	22	183 00	67 00	43	134 00	129 00
Putnam	66	361 00	217 00	19	253 00	76 50
Richland	23	148 00	64 00	9	108 00	27 00
Ross	23	112 00	88 00	......	....	....
Sandusky	38	246 00	114 00	......	....	....
Scioto	10	63 00	36 50	......	....	....
Shelby	28	209 00	67 00	......	....	....
Stark	46	338 00	146 00	1	36 00	5 00
Summit	34	149 00	84 50	26	130 50	82 00
Trumbull	26	74 00	63 00	......	....	....
Tuscarawas	42	197 00	134 00	......	58 00	....
Union	49	290 00	157 60	......	....	....
Van Wert	40	562 00	209 00	3	116 00	23 00
Warren	......	....	....	18	75 00	75 00
Washington	1	61 00	4 00	......	....	....
Wayne	24	101 00	62 00	......	....	....
Williams	......	....	....	23	79 50	57 50
Wood	77	382 00	178 00	10	87 00	48 00
Wyandot	7	72 00	30 00	......	....	....
Totals	1,853	$9,328 00	$5,194 60	521	$2,726 25	$1,551 75

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Horses. Sweepstakes where Different Breeds Compete.			Horses, all Other Classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams				62	$168 00	$146 00
Allen				27	134 50	96 50
Ashtabula				22	54 00	47 00
Athens	3	20 00	20 00	10	50 00	27 00
Auglaize	27	51 00	51 00	11	55 90	26 00
Belmont						
Brown				60	175 00	160 00
Butler	4	15 00	15 00	12	25 00	25 00
Carroll				22	51 00	48 00
Champaign				13	24 00	16 00
Clark	12	53 00	48 00	12	60 00	28 00
Clermont				77	142 00	140 00
Clinton	14	24 00	24 00	25	75 00	58 00
Columbiana	20	67 00	58 00			
Coshocton	16	66 00	66 00			
Crawford	17	74 00	61 00			
West Cuyahoga						
East Cuyahoga	7	20 00	20 00	9	35 00	35 00
Darke	28	189 00	140 00	20	75 00	57 00
Delaware	7	16 00	12 00	[1]46	141 00	89 00
Erie	3	50 00	16 00			
Fairfield	19	70 00	60 00	36	106 00	106 00
Fulton						
Geauga	18	24 00	24 00	34	48 00	29 50
Greene	11	40 00	40 00	5	24 00	24 00
Guernsey	28	95 00	84 00			
Hamilton				120	388 00	268 00
Hancock				35	See Roadsters.	
Harrison				12	15 00	15 00
Jefferson				14	43 00	30 00
Lawrence				3	20 00	8 00
Licking	13	90 00	70 00	2	9 00	9 00
Logan	1	40 00		34	115 00	91 00
Lorain						
Madison				40	117 00	98 00
Mahoning	7	45 00	25 00	7	64 00	28 00
Marion	52	123 00	80 00			
Medina	2	40 00	20 00	83	143 25	126 00
Meigs						
Mercer	11			46	120 00	90 00
Miami	18	115 00	80 00	47	140 00	80 00
Monroe				8	98 00	45 00
Montgomery	19	94 00	62 00	55	227 00	166 50
Morgan	11			4	69 00	11 00
Morrow	18	64 00	48 00			
Muskingum	17	96 00	65 00			
Noble				6	82 50	18 00
Ottawa						
Paulding	2			5	27 00	15 00
Perry	3	22 50	5 00			
Pike	4	8 00	8 00	5	6 00	3 00

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Horses. Sweepstakes where Different Breeds Compete.			Horses, all Other Classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	......	....	....	15	74 50	42 00
Preble	22	18 00	18 00	21	67 00	67 00
Putnam	......	....	....	9	37 00	31 50
Richland	......	....	....	......	....	....
Ross	16	48 00	48 00	5	60 00	37 00
Sandusky	3	32 00	24 00	29	142 00	86 00
Scioto	7	10 00	10 00	12	51 00	45 00
Shelby	22	46 00	46 00	......	....	....
Stark	14	33 00	33 00	10	28 00	19 00
Summit	......	....	....	11	48 00	36 00
Trumbull	......	....	....	......	....	....
Tuscarawas	2	16 00	8 00	......	11 00	....
Union	......	....	....	......	....	....
Van Wert	18	98 00	88 00	15	108 00	89 00
Warren	......	....	....	......	50 00	....
Washington	3	16 00	8 00	5	28 25	4 00
Wayne	12	50 00	45 00	......	....	....
Williams	8	20 00	20 00	23	215 00	110 00
Wood	20	160 00	145 00	1	25 50	2 00
Wyandot	1	17 00	6 00	......	....	....
Totals	560	$2,175 50	$1,701 00	1,185	$4,072 40	$2,828 00

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[1] Includes Roadsters, Saddle and Shetland Ponies.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Speed Horses.			Sheep—Fine Wools.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	......	....	....	13	$36 00	$36 00
Allen	74	$2,850 00	$1,517 50	24	78 00	75 00
Ashtabula	22	1,000 00	965 00	17	26 00	26 00
Athens	21	1,750 00	700 00	11	38 19	19 00
Auglaize	108	2,100 00	1,640 00	28	136 00	61 00
Belmont	24	650 00	650 00	14	38 00	16 50
Brown	15	120 00	120 00	18	29 00	29 00
Butler	111	2,850 00	2,265 00	7	51 00	33 00
Carroll	77	1,190 00	850 00	54	84 00	84 00
Champaign	120	2,930 00	2,580 00	68	102 00	93 00
Clark	105	2,650 00	2,650 00	47	105 00	77 00
Clermont	24	350 00	350 00	......	....	....
Clinton	40	750 00	750 00	11	23 00	21 00
Columbiana	......	....	....	54	63 00	63 00
Coshocton	80	2,100 00	2,100 00	46	120 00	120 00
Crawford	65	1,450 00	1,112 50	71	66 00	56 00
West Cuyahoga	......	....	....	20	24 00	23 00
East Cuyahoga	36	1,000 00	1,000 00	[1]77	243 00	182 50
Darke	128	2,720 00	2,255 00	51	100 00	95 00
Delaware	23	775 00	212 50	28	44 00	34 00
Erie	69	1,435 00	1,435 00	20	53 00	46 50
Fairfield	63	2,350 00	2,150 00	27	123 00	113 00
Fulton	37	900 00	882 50	23	48 00	24 00
Geauga	48	1,000 00	1,000 00	......	18 00	....
Greene	......	1,900 00	1,440 00	61	64 00	64 00
Guernsey	21	475 00	342 50	27	72 00	63 00
Hamilton	77	2,590 00	2,590 00	58	108 00	97 00
Hancock	85	3,000 00	1,645 00	70	[1]266 00	[1]235 00
Harrison	48	950 00	900 00	40	74 00	71 00
Jefferson	24	720 00	720 00	31	68 00	68 00
Lawrence	14	165 00	165 00	......	....	....
Licking	51	2,200 00	1,892 50	25	72 00	57 00
Logan	72	1,600 00	1,360 00	52	81 00	74 50
Lorain	......	....	....	39	133 75	133 00
Madison	102	2,415 00	2,127 50	14	42 50	42 50
Mahoning	65	980 00	977 00	27	62 00	62 00
Marion	79	1,500 00	1,500 00	35	126 00	71 00
Medina	33	1,000 00	632 50	61	77 00	77 00
Meigs	......	....	....	10	48 00	44 00
Mercer	47	2,500 00	2,200 00	36	42 00	40 00
Miami	85	2,350 00	2,290 00	58	150 00	145 00
Monroe	42	1,000 00	942 50	25	144 00	88 00
Montgomery	82	4,000 00	3,960 00	12	48 00	48 00
Morgan	15	825 00	360 00	76	44 00	44 00
Morrow	54	1,400 00	1,340 00	33	78 00	58 00
Muskingum	40	2,000 00	1,465 00	36	60 00	58 50
Noble	20	300 00	300 00	......	....	....
Ottawa	......	300 00	....	......	28 60	....
Paulding	46	1,160 00	1,040 00	......	46 00	....
Perry	......	....	....	10	27 00	23 50

TABLE II[1]—ENTRIES AND AWARDS—Continued.

Counties.	Speed Horses.			Sheep—Fine Wools.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	......	....	....	......	....	....
Portage	39	1,200 00	760 00	......	....	....
Preble	49	1,525 00	1,017 00	7	33 00	21 00
Putnam	72	1,960 00	1,730 00	11	42 00	39 00
Richland	32	1,500 00	900 00	15	37 00	37 00
Ross	72	2,800 00	2,000 00	......	....	....
Sandusky	......	....	....	34	49 00	49 00
Scioto	13	285 00	285 00	8	48 00	24 00
Shelby	44	1,400 00	1,375 00	10	62 00	39 50
Stark	34	1,200 00	700 00	50	94 00	94 00
Summit	105	2,100 00	1,975 00	13	43 00	36 00
Trumbull	47	1,400 00	1,105 00	9	28 00	23 00
Tuscarawas	31	1,350 00	845 00	47	105 00	105 00
Union	50	2,100 00	1,607 00	65	82 00	72 03
Van Wert	65	2,100 00	1,470 50	16	56 00	56 00
Warren	88	1,100 00	1,080 00	12	24 00	24 00
Washington	......	....	....	20	36 75	32 25
Wayne	48	1,500 00	1,455 00	8	25 50	20 00
Williams	61	1,400 00	1,082 50	43	108 00	69 50
Wood	......	....	....	17	40 00	40 00
Wyandot	39	1,250 00	465 00	1	40 00	4 00
Totals	3,281	$94,420 00	$77,226 50	1,951	$4,563 29	$3,776 78

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[1] Includes all classes.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Sheep. Coarse and Long Wools.			Sheep. Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	12	$36 00	$32 00			
Allen	24	78 00	62 00			
Ashtabula	197	221 00	203 00	18	$24 00	$20 00
Athens	28	67 00	58 00	7	14 00	14 00
Auglaize	41	136 00	72 00	7	21 00	17 00
Belmont	7	38 00	12 50	5	8 00	6 00
Brown	40	115 00	115 00			
Butler	82	255 00	246 00			
Carroll	41	84 00	80 00			
Champaign	124	238 00	200 00			
Clark	123	210 00	180 00	25	60 00	60 00
Clermont	60	144 00	142 00			
Clinton	8	23 00	19 00	17	23 00	23 00
Columbiana	37	94 00	80 00			
Coshocton	77	245 00	195 00	40	117 00	104 00
Crawford	52	66 00	59 00	38	28 00	28 00
West Cuyahoga	39	96 00	74 50			
East Cuyahoga	See Fine Wools.			13	7 00	7 00
Darke	59	100 00	95 00			
Delaware	37	44 00	41 00	7	18 00	12 00
Erie	24	107 00	36 50	4		
Fairfield	58	123 00	121 00	21	132 00	122 00
Fulton	37	48 00	40 50	13	31 50	16 00
Geauga	70	134 00	96 00	32	36 00	36 00
Greene	94	192 00	170 00	13	15 00	15 00
Guernsey	7	36 00	24 00	11	50 00	50 00
Hamilton	60	144 00	135 50			
Hancock	37	See Fine Wools.				
Harrison	22	30 00	30 00	5	10 00	10 00
Jefferson	14	68 00	35 00	12	61 00	61 00
Lawrence						
Licking	40	192 00	109 50	10	60 00	50 00
Logan	43	86 00	83 50		20 00	
Lorain	42	133 75	133 00			
Madison	57	154 00	141 00			
Mahoning	62	124 00	121 00	7	15 00	15 00
Marion	32	92 00	90 00	45	46 00	46 00
Medina	48	128 00	95 00	11	28 00	28 00
Meigs	13	37 00	35 00			
Mercer	49	120 00	100 00	8	32 00	24 00
Miami	12	30 00	30 00	18	36 00	36 00
Monroe	8	96 00	34 00			
Montgomery	52	192 00	190 00	10	81 00	39 00
Morgan	16	22 00	22 00	39	22 00	22 00
Morrow	33	104 00	60 00	30	32 00	32 00
Muskingum	15	60 00	20 75			
Noble						
Ottawa		26 25				
Paulding		53 00				
Perry	10	27 00	23 50		10 00	

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Sheep. Coarse and Long Wools.			Sheep. Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	1	....	....	......	....	....
Portage	43	108 00	85 50	2	13 50	6 00
Preble	84	198 00	188 00	13	6 00	6 00
Putnam	91	219 00	186 00	......	....	....
Richland	9	37 00	28 00	......	....	....
Ross	......	....	....	......	....	....
Sandusky	34	98 00	98 00	......	....	....
Scioto	11	48 00	27 00	4	15 00	10 00
Shelby	21	62 00	31 00	......	....	....
Stark	55	141 00	135 00	......	....	....
Summit	71	185 00	134 50	......	....	....
Trumbull	12	28 00	26 00	7	28 00	22 00
Tuscarawas	43	140 00	103 00	7	35 00	35 00
Union	60	104 00	94 60	......	....	....
Van Wert	83	224 00	224 00	16	30 00	30 00
Warren	22	73 00	53 00	2	8 00	8 00
Washington	18	48 75	32 75	20	24 00	16 50
Wayne	10	25 50	15 00	4	15 00	14 00
Williams	43	162 00	49 50	2	10 00	10 00
Wood	34	128 00	94 00	4	15 00	15 00
Wyandot	15	40 00	40 00	......	....	....
Totals	2,803	$6,918 25	$5,587 60	547	$1,237 00	$1,065 50

TABLE II—ENTRIES AND AWARDS—Continued.

Counties	Swine—Poland Chinas.			Swine—Berkshires.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	4	$28 00	$12 00	......	....	....
Allen	13	52 50	34 00	......	....	....
Ashtabula	11	42 00	39 00	18	42 00	42 00
Athens	5	23 00	13 00	12	23 00	21 00
Auglaize	41	60 00	60 00	......	....	....
Belmont	......	20 00	....	......	....	....
Brown	25	46 00	45 00	10	46 00	42 00
Butler	26	72 00	72 00	28	72 00	72 00
Carroll	17	36 00	34 00	15	36 00	27 00
Champaign	38	52 00	52 00	43	52 00	52 00
Clark	21	59 00	52 00	21	59 00	55 00
Clermont	25	40 00	37 00	10	40 00	30 00
Clinton	9	26 00	15 00	......	....	....
Columbiana	17	40 00	32 00	17	40 00	40 00
Coshocton	32	56 00	56 00	21	56 00	50 00
Crawford	29	56 00	53 00	10	56 00	25 00
West Cuyahoga	5	31 00	15 00	6	31 00	16 00
East Cuyahoga	11	31 00	20 00	15	31 00	30 50
Darke	30	54 00	43 00	10	54 00	46 00
Delaware	35	37 00	35 00	16	37 00	27 00
Erie	1	28 50	4 00	......	28 50	....
Fairfield	28	81 00	76 00	23	81 00	81 00
Fulton	22	30 00	28 00	19	30 00	28 00
Geauga	19	30 00	24 00	20	30 00	26 00
Greene	29	32 00	32 00	10	32 00	28 00
Guernsey	......	....	....	......	....	....
Hamilton	38	76 00	68 00	16	76 00	63 00
Hancock	16	200 00	36 00	......	....	....
Harrison	19	17 00	10 00	See Poland Chinas.		
Jefferson	8	15 00	15 00	11	15 00	15 00
Lawrence	......	....	....	......	....	....
Licking	30	80 00	70 00	21	80 00	72 00
Logan	40	57 00	54 00	12	57 00	42 50
Lorain	19	55 00	55 00	17	55 00	55 00
Madison	35	78 00	78 00	27	78 00	76 00
Mahoning	15	42 00	36 00	17	42 00	40 00
Marion	28	48 00	45 00	12	48 00	35 00
Medina	......	....	....	34	33 00	31 00
Meigs	2	8 00	6 00	3	9 00	6 00
Mercer	36	44 00	40 00	42	48 00	44 00
Miami	39	63 00	63 00	33	63 00	63 00
Monroe	12	34 00	32 00	2	34 00	8 00
Montgomery	28	69 00	60 00	12	69 00	58 00
Morgan	13	33 00	20 00	......	....	....
Morrow	14	35 00	28 00	11	35 00	24 00
Muskingum	15	60 00	54 50	16	60 00	48 25
Noble	......	....	....	......	....	....
Ottawa	......	25 90	....	......	25 00	....
Paulding	20	46 50	44 25	26	46 50	45 50
Perry	......	21 25	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—Poland Chinas.			Swine—Berkshires.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	......	....	....	......	....	....
Portage	4	27 00	11 50	5	27 00	14 50
Preble	22	60 00	58 00	21	60 00	58 00
Putnam	40	65 00	53 50	34	65 00	59 00
Richland	27	40 00	37 00	......	40 00	....
Ross	......	....	....	......	....	....
Sandusky	11	60 00	60 00	13	60 00	47 00
Scioto	8	36 00	24 00	3	36 00	5 50
Shelby	8	36 00	27 50	9	37 50	31 00
Stark	22	62 00	51 00	26	62 00	62 00
Summit	22	64 50	55 00	25	64 50	62 00
Trumbull	7	28 00	21 00	5	28 00	15 00
Tuscarawas	10	44 00	31 00	18	44 00	44 00
Union	34	37 00	34 30	14	35 00	32 70
Van Wert	18	76 00	76 00	27	76 00	66 00
Warren	20	60 00	49 00	......	47 00	....
Washington	5	36 00	8 00	2	36 00	3 00
Wayne	13	30 00	20 50	5	30 00	9 00
Williams	34	45 00	43 00	23	45 00	41 00
Wood	19	56 00	56 00	12	56 00	56 00
Wyandot	7	25 50	23 50	......	25 50	....
Totals	1,241	$3,058 65	$2,437 55	878	$2,624 00	$2,070 45

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[1] Includes Berkshires.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—Chester Whites.			Swine—Duroc Jerseys.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	9	$28 00	$28 00	.....	....	....
Allen	7	52 50	20 00	17	$52 50	$36 00
Ashtabula	24	42 00	42 00	9	42 00	29 00
Athens	.....	23 00	....	.....	....	....
Auglaize	26	60 00	60 00	32	60 00	60 00
Belmont	.....	20 00	....	.....	....	....
Brown	17	46 00	40 00	12	46 00	46 00
Butler	35	72 00	72 00	50	72 00	72 00
Carroll	10	36 00	24 00	.....	....	....
Champaign	27	52 00	52 00	25	52 00	46 00
Clark	29	59 00	55 00	9	59 00	29 00
Clermont	10	40 00	30 00	3	40 00	13 00
Clinton	.....	....	....	7	21 00	16 00
Columbiana	27	40 00	40 00	.....	....	....
Coshocton	20	56 00	56 00	30	56 00	53 00
Crawford	19	56 00	50 00	18	56 00	36 00
West Cuyahoga	11	31 00	25 00	.....	....	....
East Cuyahoga	11	31 00	26 00	6	31 00	14 00
Darke	12	54 00	34 00	15	54 00	33 00
Delaware	20	37 00	25 00	9	37 00	20 00
Erie	4	28 50	16 00	.....	....	....
Fairfield	21	81 00	72 00	11	81 00	69 00
Fulton	16	30 00	24 00	17	30 00	22 00
Geauga	17	30 00	24 00	.....	....	....
Greene	16	32 00	27 00	.....	....	....
Guernsey	6	22 00	5 00	.....	....	....
Hamilton	14	76 00	60 00	22	76 00	65 00
Hancock	.....	....	....	.....	....	....
Harrison	10	17 00	12 00	.....	....	....
Jefferson	3	15 00	10 00	.....	....	....
Lawrence	.....	....	....	.....	....	....
Licking	13	80 00	51 00	37	80 00	74 00
Logan	12	57 00	42 50	23	57 00	54 50
Lorain	9	55 00	55 00	12	55 00	55 00
Madison	21	78 00	75 00	23	78 00	61 00
Mahoning	18	42 00	36 00	.....	....	....
Marion	24	48 00	37 00	10	48 00	32 00
Medina	15	33 00	28 00	.....	....	....
Meigs	4	12 00	9 00	.....	....	....
Mercer	38	48 00	40 00	52	48 00	46 00
Miami	36	63 00	59 00	10	63 00	43 00
Monroe	.....	34 00	....	.....	....	....
Montgomery	23	69 00	69 00	.....	....	....
Morgan	8	33 00	18 00	.....	....	....
Morrow	8	35 00	22 00	9	35 00	24 00
Muskingum	8	60 00	25 50	23	60 00	51 00
Noble	.....	....	....	.....	....	....
Ottawa	.....	25 00	....	.....	....	....
Paulding	13	46 50	31 50	11	46 50	32 25
Perry	.....	21 25	....	.....	....	....
Pike	.....	....	....	.....	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—Chester Whites.			Swine—Duroc Jerseys.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage.	......	27 00	....	......	27 00	....
Preble.	31	60 00	60 00	25	60 00	54 00
Putnam.	21	65 00	47 00	38	65 00	64 50
Richland.	14	40 00	40 00	7	40 00	21 00
Ross.	......	....	....	......	....	....
Sandusky.	......	60 00	....	9	60 00	34 00
Scioto.	4	36 00	8 00	......	....	....
Shelby.	9	37 50	30 50	8	37 50	15 50
Stark.	4	62 00	12 00	......	....	....
Summit.	34	64 50	62 00	......	....	....
Trumbull.	7	28 00	21 00	......	....	....
Tuscarawas.	......	44 00	....	9	44 00	30 00
Union.	......	....	....	24	37 00	30 60
Van Wert.	17	76 00	76 00	26	76 00	66 00
Warren.	......	47 00	....	23	47 00	45 00
Washington.	11	36 00	26 00	......	....	....
Wayne.	7	30 00	22 00	......	....	....
Williams.	13	45 00	25 50	......	....	....
Wood.	17	56 00	52 00	16	56 00	38 00
Wyandot.	6	25 50	23 50	......	25 50	....
Totals.	866	$2,846 25	$2,033 00	687	$2,011 00	$1,530 35

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—All Other Breeds.			Swine. Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams						
Allen						
Ashtabula	13	$42 00	$38 00			
Athens				5	$8 00	$8 00
Auglaize				12	14 00	14 00
Belmont				4	10 00	
Brown						
Butler						
Carroll	7	36 00	16 00			
Champaign		52 00				
Clark		59 00		15	42 00	36 00
Clermont						
Clinton						
Columbiana	92	63 00	48 00			
Coshocton	8	56 00	33 00	15	20 00	20 00
Crawford				11	14 00	14 00
West Cuyahoga	21	62 00	50 00			
East Cuyahoga	4	31 00	8 75	5	6 00	6 00
Darke	5	54 00		5	60 00	29 00
Delaware	17	37 00	26 00	8	15 00	15 00
Erie	1	107 00	4 00			
Fairfield				27	48 00	48 00
Fulton	19	30 00	23 00	14	31 50	31 50
Geauga	19	30 00	16 00	18	16 00	16 00
Greene	19	32 00	32 00	40	80 00	75 00
Guernsey	13	22 00	20 00	8	12 00	12 00
Hamilton	13	76 00	62 00	2	8 00	8 00
Hancock						
Harrison	10	17 00	16 00	4	12 00	12 00
Jefferson				11	40 00	32 00
Lawrence						
Licking						
Logan				4	24 00	
Lorain	26	55 00	55 00			
Madison						
Marhoning				21	33 00	33 00
Marion				18	20 00	20 00
Medina	18	66 00	30 00	9	16 00	16 00
Meigs						
Mercer	60	60 00	50 00	6	32 00	24 00
Miami		63 00		22	40 00	40 00
Monroe	4	34 00	10 00			
Montgomery	23	69 00	69 00	40	88 00	82 00
Morgan	12			16	9 00	9 00
Morrow				18	32 00	32 00
Muskingum						
Noble						
Ottawa						
Paulding				9	20 00	20 00
Perry					10 00	

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—All Other Breeds.			Swine. Sweepstakes where Different Breeds Compete.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike.						
Portage.						
Preble.				29	48 00	40 00
Putnam.	24	200 00	68 00			
Richland.	12	40 00	32 00	9	29 00	29 00
Ross.						
Sandusky.	30	60 00	60 00	9	17 00	17 00
Scioto.				4	16 00	16 00
Shelby.				7	8 00	8 00
Stark.	26	124 00	86 00			
Summit.	20	64 50	61 50			
Trumbull.	5	28 00	15 00			
Tuscarawas.		29 00		3	20 00	15 00
Union.	5	33 00	12 00			
Van Wert.	12	76 00	50 00	21	30 00	30 00
Warren.		15 00				
Washington.	5	36 00	14 00	9	17 00	17 00
Wayne.				8	10 00	10 00
Williams.	37	135 00	50 10	4	10 00	10 00
Wood.	13	56 00	49 00	12	29 00	29 00
Wyandot.				2	15 00	10 00
Totals.	593	$2,049 50	$1,104 35	484	$1,009 50	$883 50

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Poultry.			Mechanic Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	35	$120 00	$28 50	52	$50 00	$32 00
Allen	128	94 75	53 00	44	117 00	53 00
Ashtabula	129	96 00	58 00	......	....	....
Athens	39	50 00	20 50	11	150 00	7 00
Auglaize	179	110 00	80 40	185	....	....
Belmont	200	159 40	46 25	70	130 75	31 75
Brown	250	130 00	110 00	35	45 00	25 00
Butler	473	140 50	104 25	......	....	....
Carroll	154	76 25	55 00	26	61 50	33 50
Champaign	183	213 00	110 00	18	72 00	49 00
Clark	149	291 20	108 75	290	239 75	159 00
Clermont	189	76 00	67 50	7	6 00	6 00
Clinton	282	....	....	......	....	....
Columbiana	......	....	....	14	33 00	33 00
Coshocton	239	250 40	132 20	48	121 75	54 00
Crawford	548	102 50	85 00	15	117 00	85 00
West Cuyahoga	457	171 95	171 95	29	....	....
East Cuyahoga	101	88 00	44 40	125	205 00	126 00
Darke	621	135 00	100 00	280	150 00	62 00
Delaware	163	78 00	44 75	39	8 00	3 00
Erie	48	61 25	22 50	56	87 50	34 75
Fairfield	273	111 00	98 00	......	....	....
Fulton	313	191 65	129 20	21	66 50	56 50
Geauga	125	39 50	34 00	12	16 50	16 00
Greene	119	118 50	103 50	......	....	....
Guernsey	142	54 00	46 50	28	[1]300 00	[1]261 46
Hamilton	389	167 50	146 00	8	130 00	125 00
Hancock	166	323 00	116 50	44	318 00	....
Harrison	50	30 00	20 00	9	40 00	8 00
Jefferson	38	71 00	10 00	40	92 00	16 00
Lawrence	8	32 00	4 40	......	....	....
Licking	233	117 00	102 50	......	....	....
Logan	370	94 00	54 00	80	84 00	72 00
Lorain	246	....	136 20	76	350 00	350 00
Madison	214	151 50	119 50	......	....	....
Mahoning	241	175 00	140 00	54	65 00	39 25
Marion	......	....	....	148	157 00	127 00
Medina	231	....	62 75	23	27 50	11 00
Meigs	35	36 00	15 00	7	....	....
Mercer	210	150 00	140 00	190	40 00	....
Miami	482	183 50	164 00	15	50 00	50 00
Monroe	60	75 00	48 50	75	50 00	25 00
Montgomery	1,186	251 75	210 50	......	75 00	60 00
Morgan	14	97 00	9 50	4	64 50	6 00
Morrow	57	137 00	35 00	......	....	....
Muskingum	428	213 20	164 18	30	126 00	65 00
Noble	33	112 50	26 50	34	125 00	45 50
Ottawa	......	37 50	....	......	85 00	....
Paulding	114	58 40	43 37	35	88 00	22 31
Perry	52	72 20	33 05	11	31 10	5 00
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Poultry.			Mechanic Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	160	208 50	88 00	17	75 75	20 00
Preble	143	165 25	124 50	12	89 50	81 50
Putnam	298	187 00	117 50	38	147 00	78 50
Richland	78	113 50	24 50	48	54 00	36 00
Ross	......	53 00	....	26	82 00	62 00
Sandusky	825	557 00	410 00	163	214 00	120 00
Scioto	86	140 00	52 00	19	60 00	22 50
Shelby	320	191 10	127 56	......	....	....
Stark	353	263 00	132 30	4	86 00	13 00
Summit	426	345 75	222 25	168	73 50	30 50
Trumbull	30	48 00	16 25	......	....	....
Tuscarawas	173	125 00	76 05	16	125 50	77 00
Union	502	200 00	176 75	68	40 00	23 00
Van Wert	647	....	310 75	72	108 00	106 00
Warren	255	171 50	130 86	28	72 50	39 50
Washington	65	105 00	70 40	23	132 50	20 25
Wayne	191	133 25	47 60	310	....	....
Williams	146	140 20	48 30	55	103 85	44 80
Wood	115	201 00	49 50	68	....	....
Wyandot	342	340 00	257 30	33	5 00	5 00
Totals	15,545	$9,231 95	$6,137 97	3,456	$5,444 45	$2,934 57

[1] Includes all the following classes.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Farm Products.			Fruits and Flowers.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	319	$100 00	$85 00	108	$67 00	$39 50
Allen	398	104 10	104 10	124	84 50	46 00
Ashtabula	398	127 55	96 35	345	129 80	68 70
Athens	92	75 00	29 00	386	150 00	91 25
Auglaize	702	190 00	142 00	[1]367	58 00	58 00
Belmont	250	61 50	50 50	102	30 00	24 00
Brown	600	90 00	80 00	430	105 00	80 00
Butler	480	124 00	124 00	[1]382	70 50	67 00
Carroll	334	79 50	71 75	365	58 00	54 50
Champaign	448	147 00	117 75	450	162 25	110 25
Clark	516	481 75	398 00	[1]324	150 50	118 50
Clermont	331	69 75	51 05	997	203 30	185 05
Clinton	103	31 00	31 00	29	29 25	26 00
Columbiana	339	97 75	93 75	428	160 00	157 50
Coshocton	215	126 00	119 00	310	108 25	92 00
Crawford	327	119 00	73 00	227	147 00	112 50
West Cuyahoga	331	94 80	62 60	201	72 70	42 55
East Cuyahoga	211	180 00	167 00	144	81 00	60 20
Darke	[2]459	535 00	451 00	145	85 00	66 00
Delaware	[3]116	101 75	49 50	166	109 00	48 50
Erie	99	178 95	58 50	280	183 75	137 75
Fairfield	218	223 00	201 00	[1]98	298 00	180 00
Fulton	277	88 50	55 80	452	145 60	90 25
Geauga	370	123 00	103 00	350	86 25	68 75
Greene	380	108 75	90 45	182	81 90	77 35
Guernsey	1,015	See Mechanic Arts.		[1]817	See Mechanic Arts.	
Hamilton	294	155 50	140 50	150	288 50	283 25
Hancock	55	225 00	62 25	[1]72	175 00	45 50
Harrison	166	46 00	31 00	[1]375	115 00	60 00
Jefferson	165	98 00	45 00	195	71 00	38 00
Lawrence	61	33 75	16 75	121	62 30	29 20
Licking	172	197 25	104 50	196	234 50	155 50
Logan	425	91 00	74 00	222	121 00	130 00
Lorain	86	340 00	340 00	[1]34	120 00	120 00
Madison	100	161 00	75 25	252	107 50	77 50
Mahoning	462	160 00	95 00	411	158 00	139 00
Marion	655	147 00	145 00	480	149 00	140 00
Medina	369	75 00	41 65	523	50 00	77 60
Meigs	14	19 00	10 00	[1]78	13 00	12 50
Mercer	324	120 00	100 00	186	60 00	41 00
Miami	274	159 50	125 90	474	197 50	167 50
Monroe	60	75 00	25 00	206	60 00	35 00
Montgomery	249	735 75	349 00	432	369 75	294 25
Morgan	89	78 50	40 00	133	61 00	28 00
Morrow	382	76 50	61 25	553	89 50	61 75
Muskingum	180	358 00	180 61	22	78 00	28 00
Noble	28	24 00	16 25	12	12 00	7 00
Ottawa	4	5 00	2 50	10	8 00	5 00
Paulding	128	105 50	33 94	[1]237	124 15	54 49
Perry	14	64 50	10 15	......	28 30	....
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Farm Products.			Fruits and Flowers.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage.	192	168 85	46 25	396	152 10	106 90
Preble.	253	229 50	146 00	191	95 73	82 50
Putnam.	920	202 00	148 40	560	103 00	65 00
Richland.	110	110 25	47 50	139	73 75	29 75
Ross.	139	115 00	84 00	[1]140	162 00	82 10
Sandusky.	435	119 00	102 00	450	102 00	102 00
Scioto.	198	108 00	83 45	[1]293	139 00	108 55
Shelby.	250	69 00	50 00	120	103 45	47 45
Stark.	210	181 25	96 30	588	383 75	274 35
Summit.	1,031	174 65	256 95	1,093	238 70	327 80
Trumbull.	181	66 00	35 70	385	111 50	78 00
Tuscarawas.	132	106 60	62 10	180	105 45	53 00
Union.	273	166 15	92 80	[1]499	87 50	63 95
Van Wert.	1,194	....	298 50	1,463	....	108 50
Warren.	230	78 75	62 25	538	93 50	81 50
Washington.	54	179 10	16 35	50	47 00	18 80
Wayne.	113	69 60	36 75	111	61 25	39 25
Williams.	226	56 60	33 25	[1]261	108 70	64 05
Wood.	757	322 75	319 00	399	151 00	130 25
Wyandot.	87	73 50	41 30	30	52 00	23 25
Totals.	21,069	$9,804 95	$7,089 45	21,469	$7,980 93	$6,019 09

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[1] Includes canned fruit, pickles, jellies, etc.

[2] Includes Grange display.

[3] Includes Township display.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Canned Fruits, Pickles, Jellies, etc.			Fine Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	401	$55 00	$36 50	45	$32 50	$23 75
Allen	296	75 75	83 70	1293	205 50	144 17
Ashtabula	252	65 70	39 50	133	117 00	88 75
Athens	68	30 00	21 50	49	36 00	33 50
Auglaize	See Fruits and Flowers.			721	78 00	61 50
Belmont	132	35 00	25 50	23	5 75	5 25
Brown	200	50 00	45 00	50	15 00	15 00
Butler	See Fruits and Fowers.			493	250 50	166 00
Carroll	117	31 25	25 00	40	17 00	17 00
Champaign	279	70 50	68 25	218	81 00	80 00
Clark	See Fruits and Flowers.			338	286 25	267 00
Clermont	446	80 50	75 20	75	70 25	56 25
Clinton	106	37 50	34 00	13	13 00	13 00
Columbiana	211	40 00	38 00	28	23 00	16 00
Coshocton	193	52 50	52 50	312	226 00	191 00
Crawford	130	31 25	28 00	1611	306 50	247 15
West Cuyahoga	170	27 45	21 20	25	17 35	9 15
East Cuyahoga	206	68 00	40 20	111	65 00	35 00
Darke	109	108 00	70 00	52	100 00	50 00
Delaware	205	53 00	47 00	71	35 50	32 50
Erie	163	15 75	12 50	188	165 50	77 50
Fairfield	See Fruits and Flowers.			305	234 00	221 00
Fulton	262	65 00	46 55	181	162 25	106 00
Geauga	110	20 25	19 25	70	54 75	47 75
Greene	397	54 50	51 50	171	112 75	101 25
Guernsey	See Fruits and Flowers.			290	See Mechanic Arts.	
Hamilton	281	70 50	70 50	315	164 25	153 25
Hancock	See Fruits and Flowers.			135	425 00	182 75
Harrison	See Fruits and Flowers.			75	78 00	56 00
Jefferson	341	85 00	44 00	102	45 00	43 00
Lawrence	48	29 00	13 25	......	....	....
Licking	238	159 50	115 50	187	271 50	189 50
Logan	955	65 00	139 00	376	205 00	195 00
Lorain	See Fruits and Flowers.			39	146 00	146 00
Madison	202	85 75	75 25	22	54 00	16 00
Mahoning	149	38 00	24 80	154	124 00	116 50
Marion	547	51 00	48 00	150	118 00	58 00
Medina	251	15 00	31 85	94	80 55	57 30
Meigs	See Fruits and Flowers.			4	11 00	3 50
Mercer	320	100 00	70 00	96	40 00	20 00
Miami	289	83 50	79 00	403	224 00	218 50
Monroe	175	25 00	15 00	100	30 00	26 00
Montgomery	693	208 00	152 50	316	177 00	159 50
Morgan	171	27 50	26 00	91	64 00	32 00
Morrow	355	37 50	36 50	37	96 50	26 25
Muskingum	171	41 00	39 50	82	128 00	101 00
Noble	48	18 00	18 00	3	55 50	1 00
Ottawa	14	4 50	2 50	5	4 50	2 00
Paulding	See Fruits and Flowers.			9	53 75	3 18
Perry	......	23 10	....	1	16 25	.50
Pike	......	....	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Canned Fruits, Pickles, Jellies, etc.			Fine Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	100	33 00	25 40	18	45 00	12 00
Preble	327	66 00	64 50	268	151 00	146 00
Putnam	977	96 00	91 00	[1]1,889	959 00	865 55
Richland	......	....	....	13	15 50	11 00
Ross	See	Fruits and	Flowers.	......	....	....
Sandusky	105	32 00	32 00	70	90 00	90 00
Scioto	See	Fruits and	Flowers.	24	44 00	7 60
Shelby	396	47 00	36 50	713	189 25	107 50
Stark	253	78 45	71 50	[1]171	264 00	244 25
Summit	312	77 25	45 25	[1]536	146 25	133 25
Trumbull	130	36 00	30 50	64	46 75	29 50
Tuscarawas	40	41 80	5 55	42	86 00	31 50
Union	See	Fruits and	Flowers.	262	115 50	96 85
Van Wert	837	....	69 00	[1]796	....	440 00
Warren	160	30 50	30 50	150	85 75	64 75
Washington	26	67 90	8 90	40	143 25	26 85
Wayne	68	30 45	22 95	72	43 00	41 90
Williams	See	Fruits and	Flowers.	249	64 50	52 75
Wood	266	49 25	49 00	349	208 25	161 00
Wyandot	260	52 50	50 00	45	23 25	19 50
Totals	13,958	$2,971 85	$2,514 55	13,473	$8,042 40	$6,493 05

[1] Includes Educational exhibits.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Textile Fabrics.		
	Number of entries.	Amount offered.	Amount awarded.
Adams	360	$141 00	$113 75
Allen	247	210 00	81 70
Ashtabula	476	334 40	280 70
Athens	214	100 00	52 75
Auglaize	1,114	305 00	296 50
Belmont	98	42 50	22 75
Brown	250	90 00	79 00
Butler	799	287 50	174 00
Carroll	397	77 50	71 75
Champaign	305	115 00	97 75
Clark	302	184 00	133 25
Clermont	377	157 50	109 75
Clinton	139	42 00	42 00
Columbiana	125	78 00	65 00
Coshocton	459	128 00	127 00
Crawford	455	155 25	150 25
West Cuyahoga	321	70 05	58 00
East Cuyahoga	139	70 00	53 00
Darke	816	516 00	171 42
Delaware	357	214 00	171 00
Erie	306	305 00	123 75
Fairfield	108	232 75	215 00
Fulton	444	145 00	98 80
Geauga	400	154 75	114 00
Greene	406	211 40	180 00
Guernsey	700	See Mechanic Arts.	
Hamilton	323	144 00	136 00
Hancock	2	50 00	32 50
Harrison	250	55 00	55 00
Jefferson	298	140 00	81 00
Lawrence	......	....	....
Licking	202	174 50	159 00
Logan	1,147	265 00	467 75
Lorain	51	102 00	102 00
Madison	171	156 50	64 25
Mahoning	130	70 00	43 25
Marion	255	92 00	60 00
Medina	340	179 30	106 90
Meigs	......	....	....
Mercer	460	240 00	80 00
Miami	741	327 50	286 50
Monroe	175	40 00	25 45
Montgomery	530	220 00	205 25
Morgan	46	51 00	16 00
Morrow	671	178 00	136 60
Muskingum	111	57 75	50 50
Noble	2	13 50	1 50
Ottawa	......	....	....
Paulding	144	224 00	52 70
Perry	29	55 25	17 40

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Textile Fabrics.		
	Number of entries.	Amount offered.	Amount awarded.
Pike	......	....	....
Portage	118	128 00	48 30
Preble	721	145 75	132 25
Putnam	1,024	370 00	287 00
Richland	33	92 50	23 50
Ross	490	412 00	294 00
Sandusky	250	206 00	125 00
Scioto	94	90 00	54 20
Shelby	295	111 00	77 00
Stark	355	204 00	175 40
Summit	613	118 50	102 20
Trumbull	129	73 75	50 25
Tuscarawas	267	118 50	78 75
Union	320	188 00	139 75
Van Wert	897	....	332 85
Warren	482	159 50	133 75
Washington	93	197 75	33 10
Wayne	382	185 00	156 55
Williams	453	103 85	128 25
Wood	529	228 75	211 00
Wyandot	78	89 00	57 75
Totals	23,815	$10,423 75	$7,903 27

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1900.

Counties.	Number of acres in Fair Grounds.	Grounds owned by the Society or leased.	If owned, cash value of real estate and improvements thereon.	Amount of indebtedness, if any, over and above cash on hand.	Number of members.	Amount received from gate admissions.	Amount received from entry fees.	Amount received from booth rents and privilege permits.	Amount received from other sources.	Amount paid in premiums.	Amount paid for real estate, buildings and permanent improvements.	Amount paid for current expenses other than premiums.
Adams	16 1-2	Owned	$6,500 00	$1,200 00	186	$1,631 15	$78 40	$228 40	$345 45	$1,267 00	$322 08	$1,080 41
Allen	30	Owned	15,000 00	6,548 91	437	2,987 00	348 15	587 60	251 97	2,804 57	313 89	2,105 17
Ashtabula	14	Owned	7,500 00	1,773 98	175	2,690 65	432 50	734 50	1,823 50	2,508 50	....	1,452 86
Athens	32	Owned	15,000 00	8,200 00	120	1,911,45	302 35	337 25	300 00	1,424 50	....	1,426 55
Auglaize	40	*Owned	10,000 00	3,137 60	14	3,808 40	618 60	1,268 85	518 45	3,183 41	311 71	1,406 75
Belmont	15 1-2	Owned	2,000 00	502 26	92	596 40	216 74	184 90	486 00	994 40	....	1,009 96
Brown	20	Owned	4,000 00	....	706	2,938 13	90 00	409,60	669,69	1,602 00	....	1,248 22
Butler	55	Owned	45,000 00	17,243 17	10	7,073 00	942 50	1,876 16	4,416 08	2,107 05	432 86	9,011 00
Carroll	27	Owned	7,000 00	3,000 00	14	2,220 55	459 73	431 43	1,279 42	1,798 30	[illegible]0 00	1,748 61
Champaign	50	Owned	15,000 00	....	86	3,372 21	1,533 65	657 00	960 85	4,253 75	395 61	1,846 41
Clark	40	*Owned	....	....	22	2,586 40	1,100 28	1,309 92	3,647 72	5,175 94	307 10	2,541 07
Clermont	24	Owned	10,000 00	1,000 00	861	1,882 50	111 00	460 00	677 53	1,877 80	125 00	908 46
Clinton	35	Leased	....	....	....	1,514 83	418 07	335 50	....	1,589 00	250 33	670 73
Columbiana	26	Owned	10,000 00	3,000 00	534	2,585 65	....	390 00	975 25	1,839 00	1,105 49	1,407 58
Coshocton	38	Owned	25,000 00	3,112 60	16	6,190 10	980 20	1,037 50	1,356 24	4,704 70	4,000 47	2,616 49
Crawford	30	Owned	3,100 00	104 84	175	2,413 70	610 70	453 00	819 30	2,635 40	745 00	1,021 14
West Cuyahoga	20	Owned	15,000 00	1,140 88	150	1,301 60	579 40	373 88	1,024 04	1,021 05	....	2,254 52
East Cuyahoga	56	Owned	17,200 00	600 00	466	2,309 30	165 20	328 75	697 19	2,191 55	429 50	788 51
Darke	44 5-6	Owned	25,000 00	3,500 00	1,760	6,226 00	988 40	1,825 11	1,292 12	4,905 42	375 00	3,544 22
Delaware	40	Leased	....	....	361	1,361 20	32 50	177 00	411 45	1,118 75	367 73	559 96
Erie	43	*Owned	75,000 00	....	400	2,100 00	657 50	257 00	18,164 22	737 25	15,163 05	5,075 42

Fairfield	76	*Owned	70,000 00	18,000 00	403	6,351 00	1,290 50	1,122 00	1,414 39	4,773 00	100 00	1,450 00
Fulton	40	Owned	6,300 00	....	220	2,432 20	454 20	541 33	485 84	2,292 80	132 02	772 74
Geauga	23	Owned	10,000 00	....	830	2,816 00	401 00	478 00	1,738 00	2,069 00	380 00	2,691 00
Greene	39	Leased	....	145 22	332	2,959 96	1,241 80	673 25	35 00	2,239 05	....	2,816 18
Guernsey	20	Owned	2,500 00	....	80	1,908 01	482 82	200 00	673 29	1,346 46	....	1,191 96
Hamilton	57	Owned	25,000 00	....	563	5,620 20	1 265 00	3,257 95	400 00	5,762 00	1,681 12	3,036 28
Hancock	78	Owned	15,000 00	851 00	325	3,703 25	671 95	817 04	217 88	2,923 00	790 30	1,497 64
Harrison	30	Leased	....	....	10	2,292 60	450 00	157 70	150 00	1,573 00	459 95	1,017 35
Jefferson	12 1-4	Leased	....	300 00	437	1,257 50	415 00	405 50	1,299 55	1,707 00	1,389 45	581 10
Lawrence	10	Leased	....	....	101	351 04	53 58	33 80	125 90	259 94	....	262 77
Licking	80	Owned	75,000 00	8,923 18	12	4,071,10	1,232 05	453 95	1,200 50	3,976 30	240 78	1,850 13
Logan	37 1-2	Owned	8,000 00	3,000 00	3,000	3,810 85	624 00	945 25	1,471 70	3,547 70	635 76	2,466 15
Lorain	40	Owned	50,000 00	5,200 00	252	4,116 50	703 95	864 75	730 08	3,028 20	1,189 23	2,985 80
Madison	47	Leased	....	....	700	3,326 60	1,399 15	574 25	564 12	3,735 25	....	1,831 44
Mahoning	27	Owned	5,000 00	1,525 00	10	3,900 00	634 65	626 75	403 79	2,450 80	475 00	2,162 68
Marion	47	Owned	20,000 00	10,000 00	160	3,000 00	590 00	650 00	300 00	3,090 00	200 00	1,050 00
Medina	28 1-4	Owned	5,000 00	202 50	....	2,122 20	240 49	381 40	225 20	1,885 80	....	1,285 99
Meigs	72	Owned	10,000 00	12,544 00	24	1,802 00	273 00	274 00	18 00	1,628 00	122 00	617 00
Mercer	45	*Owned	....	5,600 00	15	8,140 00	760 00	910 00	5,470 00	3,900 00	5,600 00	680 00
Miami	51	Owned	25,000 00	....	24	5,055 95	1,034 20	1,231 54	1,685 75	5,051 30	532 74	1,976 68
Monroe	15	Owned	6,000 00	1,022 38	104	2,209 91	345 30	274 50	1,251 75	1,500 55	1,051 70	1,051 59
Montgomery	40	*Owned	75,000 00	....	22	6,063 19	2,416 50	1,626 75	301 00	7,250 00	....	2,100 01
Morgan	30	Owned	4,000 00	3,000 00	85	968 45	12 25	93 30	373 00	800 50	289 89	383 22
Morrow	35	Owned	6,000 00	....	260	2,726 25	935 74	671 75	597 50	2,378 35	69 78	937 88
Muskingum	45	Owned	20,000 00	11,310 00	212	2,950 94	755 63	575 95	993 94	2,795 88	272 53	1,686 19
Noble	8	Owned	3,500 00	....	35	547 50	236 36	80 00	....	534 25	50 50	248 00
Ottawa	10	Leased	....	91 47	70	100 80	....	....	219 74	12 00	....	400 01
Paulding	34 1-2	Owned	4,000 00	325 00	308	1,341 00	550 40	329 45	424 52	1,065 99	221 38	758 00
Perry	20	Leased	....	649 46	51	972 00	29 30	204 00	273 45	180 10	168 39	1,369 72
Pike	20	Leased	....	....	30	375 65	143 50	50 00	712 32	404 30	1,363 09	254 35
Portage	22 3-4	Owned	10,000 00	6,000 00	403	1,594 45	289 75	494 35	3,096 88	1,471 35	....	3,955 08
Preble	39 1-2	Owned	....	790,85	2,342	3,642 80	292 50	1,054 07	1,669 72	3,288 53	1,239 54	2,921 87

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1900—Con.

Counties.	Number of acres in Fair Grounds.	Grounds owned by the Society or leased.	If owned, cash value of real estate and improvements thereon.	Amount of indebtedness, if any, over and above cash on hand.	Number of members.	Amount received from gate admissions.	Amount received from entry fees.	Amount received from booth rents and privilege permits.	Amount received from other sources.	Amount paid in premiums.	Amount paid for real estate, buildings and permanent improvements.	Amount paid for current expenses other than premiums.
Putnam	40	Owned	20,000 00	846 55	264	5,037 45	368 40	1,359 71	451 73	4,683 55	408 97	1,878 28
Richland	25	Owned	25,000 00	....	812	1,472 28	578 97	339 00	853 00	1,857 25	372 45	896 99
Ross	30	Leased	....	....	180	2,828 50	....	1,805 02	856 11	2,970 10	....	2,519 58
Sandusky	35	Owned	9,000 00	1,200 00	1,385	3,866 40	432 10	533 75	1,863 33	3,095 25	285 00	2,302 63
Scioto	20	Leased	....	400 00	52	763 25	108 20	285 00	28 50	1,026 80	475 00	124 65
Shelby	43	Owned	18,000 00	9,500 00	200	2,363 65	689 77	492 25	183 32	2,381 01	....	1,246 07
Stark	58	Owned	45,000 00	....	300	2,795 20	563 62	813 30	3,025 00	2,951 10	2,057 32	3,506 60
Summit	47	Owned	60,000 00	15,000 00	450	7,644 12	1,408 24	1,174 50	2,774 37	4,228 20	740 39	5,925 76
Trumbull	36 1-4	Owned	15,000 00	9,300 00	264	1,511 12	225 00	763 55	1,835 27	1,838 20	....	2,316 81
Tuscarawas	35	Owned	30,000 00	9,000 00	10	1,119 60	368 03	363 95	2,381 59	1,977 95	1,300 00	1,591 20
Union	49 1-4	Owned	10,000 00	1,500 00	2,000	3,318 00	18 90	991 35	1,018 00	2,964 48	1,259 45	1,120 80
Van Wert	46	Owned	8,000 00	2,200 00	2,600	4,683 00	796 00	1,256 00	1,472 58	5,073 19	800 00	2,061 58
Warren	33	Leased	....	500 00	1,802	2,563 75	697 70	646 89	425 57	2 409 11	....	1,878 83
Washington	17	Owned	15,000 00	4,000 00	580	3,983 55	457 50	878 20	580 00	....	1,358 80	4,028 30
Wayne	39	*Owned	12,000 00	3,600 00	139	2,001 59	840 11	254 00	4,045 30	2,254 10	4,295 95	1,227 22
Williams	39 1-4	Owned	7,500 00	5,000 00	134	2,118 85	383 91	466 75	263 39	2,222 35	578 48	961 02
Wood	57	Leased	....	....	222	6,169 05	1,088 10	1,221 45	662 64	2,214 00	1,663 15	4,737 26
Wyandot	30	Leased	....	....	184	490 00	133 44	100 00	249 68	465 00	....	518 32
Totals	2,561⅛	....	$1,037,300 00	$206,590 35	29,583	$201,979 48	$39,918 43	$47,455 60	$91,589 11	$173,871 58	$59,694 93	$130,484 54

* Owned by county.

OHIO STATE FAIR
—AND—
INDUSTRIAL EXPOSITION.

Columbus, September 3, 4, 5, 6, 7, 1900.

BULLETIN OF ENTRIES AND AWARDS.

The exhibition of 1900 was most complete in every respect. The several departments showed conclusively the elevated position of Ohio with respect to agriculture, manufactures, woman's work, art, music, merchandise, etc. In some of the departments for the classification of manufactures, the buildings were inadequate in capacity to accommodate the exhibits presented, and many exhibitors had to be assigned to ground space for show under canvas, proving only too conclusively the wisdom of the Board in providing for a large increase of exhibition buildings for the rapidly growing demands. Several additional large buildings are in course of construction, and will be fully completed and equipped for the fair of 1901, and, with the new buildings already completed, and in use for live stock, will fully and admirably accommodate all classes of exhibits brought out at the annual fair, and make it possible for an order of arrangement to best serve the educational purposes, and intelligently represent each class.

The fair was well attended by people from all parts of the state, and by very many persons from adjoining states, all of whom seemed pleased with the excellent exhibits and the results of the Board's work in beautifying the grounds and providing such suitable buildings in which to represent the great industries of the state. Most general and liberal were the favorable comments made, and encouraged by the approval of the people, the Board will continue to bend every effort to provide a clean, educational annual exhibition, and conduct it in the interest of industrial promotion.

This Bulletin contains a list of entries and awards in the live stock departments, a report upon the milk test, the awards in all other competitive departments, and also a list of exhibitors and exhibits in departments where no competition was entered into, all of which is Respectfully submitted,

W. W. MILLER, *Secretary.*

W. W. FLEMING, *Assistant Secretary.*

ENTRIES AND AWARDS
IN
LIVE STOCK DEPARTMENTS.

HORSES—C. Bordwell, Member in Charge.

THOROUGHBREDS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
E. Hickey, Claylick, O.	King	Second	$10.00
Same	Longfellow	First	20.00
J. T. Carmody, Chillicothe, O.	Daily Racing Form		
Mare 4 Years Old or Over.			
E. Hickey, Claylick, O.	Bonnie Maid	First	15.00
W. F. McKinney, Chillicothe, O.	Millie M.		
Mare 2 Years Old and Under 3.			
E. Hickey, Claylick, O.	Marae	Second	5.00
H. J. Booth, Columbus, O.	Cater	First	10.00
Filly 1 Year Old and Under 2.			
E. Hickey, Claylick, O.	Lillian		
H. J. Booth, Columbus, O.	Eltreena	First	10.00
Same	Repos	Second	5.00
Stallion with 4 of His Colts.			
E. Hickey, Claylick, O.	King	First	25.00
Mare with 2 of Her Progeny.			
E. Hickey, Claylick, O.	Bonnie Maid	First	20.00
H J. Booth, Columbus, O.	Aunt Kate		

C. M. Johnson, Expert Judge.

Roadsters, Standard Bred.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
H. J. Booth, Columubs, O.	Montressor		
Turner & Mitchell, Columbus, O.		Second	$10.00
J. W. Townsley, Jamestown, O.	Royalwood		
L. W. Cochran, Crawfordsville, Ind.	Harry Nixon 29,578		
Amos B. Grove, Newark, O.	Sunland Clay 27,474	First	20.00
E. S. McClellan, Kennard, O.			
Stallion 3 Years Old and Under 4.			
J. Hay & Son, Ashville, O.	The Janitor	First	20.00
M. A. Green, Johnstown, O.	Reuben Tell		
Stallion 2 Years Old and Under 3.			
Turner & Mitchell, Columbus, O.			
M. A. Green, Johnstown, O.	Can't Tell		
D. M. Bell, Leonardsburg, O.	Ollett	First	10.00
D. A. Sprague, South Charleston, O.	Col. Colt		
Same	Oddfellow		
E. M. Jones, Granville, O.		Second	5.00
E. S. McClellan, Kennard, O.			
Stallion 1 Year Old and Under 2.			
Dr. L. P. Holbrook, Mt. Vernon	Tourney 33,531		
J. Hay & Son, Ashville, O.	Prince Launcelot	First	10.00
Seymour Smith, Pataskala, O.	Li Hung 33,520	Second	5.00
M. A. Green, Johnstown, O.	Johnstown Boy		
D. A. Sprague, South Charleston, O.	Bannermont		
E. S. McClellan, Kennard, O.			
Stallion Colt.			
J. A. Hall, Columbus, O.			
Seymour Smith, Pataskala, O.		First	5.00
E. S. McClellan, Kennard, O.			
Mare 4 Years Old or Over.			
Turner & Mitchell, Columbus, O.	Pilotta M.	First	15.00
J. A. Hall, Columbus, O.			
E. S. McClellan, Kennard, O.		Second	10.00
Same			
Mare 3 Years Old and Under 4.			
J. A. Hall, Columbus, O.			
Turner & Mitchell, Columbus, O.			
Mare 2 Years Old and Under 3.			
J. A. Hall, Columbus, O.	Florence Putney		
E. S. McClellan, Kennard, O.		First	10.00
Filly 1 Year Old and Under 2.			
Seymour Smith, Pataskala, O.	Fanny Clay	First	10.00
E. S. McClellan, Kennard, O.		Second	5.00
Filly Colt.			
J. A. Hall, Columbus, O.			
Seymour Smith, Pataskala, O.		Second	3.00
D. A. Sprague, South Charleston, O.		First	5.00
E. S. McClellan, Kennard, O.			
Stallion with 4 of His Colts.			
Amos B. Grove, Newark, O.	Sunland Clay	First	25.00

Roadsters, Standard Bred—Concluded

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Mare with 2 of Her Progeny.			
Turner & Mitchell, Columbus, O.		First	20.00
J. A. Hall, Columbus, O.	Alva		
Seymour Smith, Pataskala, O.			
D. A. Sprague, South Charleston, O.			
E. S. McClellan, Kennard, O.			

D. L. Sampson, Expert Judge.

Roadsters.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
Frank Slonecker, New Jerusalem, O.	Prince		
Turner & Mitchell, Columbus, O.			
J. L. Grove, Newark, O.	Chicago Prince	First	20.00
B. F. Parcell, Reynoldsburg, O.	Columbus Wilkes		
E. S. McClellan, Kennard, O.		Second	10.00
Stallion 3 Years Old and Under 4.			
J S. Wolf, Reynoldsburg, O.	Cap Wilton	Second	10.00
M. Douglas Willison, Croton, O.			
R. H. Saxton, Granville	Baylight	First	20.00
Stallion 2 Years Old and Under 3.			
William Sunkle, Granville, O.	Prince Albert	First	10.00
B. F. Parcell, Reynoldsburg, O.	Sampson	Second	5.00
Stallion 1 Year Old and Under 2.			
T. D. Postle, Alton, O.	Necktie		
H. J. Booth, Columubs, O.	The Swell		
Chas. Jones, London, O.	Billy R.	Second	5.00
B. F. Parcell, Reynoldsburg, O.	Dewey		
R. H. Saxton, Granville, O.	McKean		
E. S. McClellan, Kennard, O.		First	10.00
Stallion Colt.			
Geo. A Geyer, Alton, O.	Anderson		
M. Douglas Willison, Croton, O.		First	5.00
Chas. Jones London, O.	Giddy R.		
R. H. Saxton, Granville, O.	Ohio Boy	Second	3.00
E. S. McClellan, Kennard, O.			
Mare 4 Years Old or Over.			
M. Douglas Willison, Croton, O.			
Turner & Mitchell, Columbus, O.		First	15.00
Same		Second	10.00
S. W. Lyon, Columbus, O.			
Seymour Smith, Pataskala, O.			
D. M. Bell, Leonardsburg, O.	Miss Frances		
R. H. Saxton, Granville, O.			
Phil Mauger, Pataskala, O.			
Mare 3 Years Old and Under 4.			
Geo. Garlinghouse, Johnstown O.		First	10.00
Ed. Hall, Columbus, O.		Second	5.00
A. E. Davis, Columbus, O.	Bell Boyd		
E. S. McClellan, Kennard, O.			

Roadsters—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Mare 2 Years Old and Under 3.			
George S. Peters, Columbus, O.			
Chas. Jones, London, O.	May Red	Second	5.00
Caleb Eubanks, Westerville, O.	Julia		
R. H. Saxton, Granville, O.	Bright Star		
E. S. McClellan, Kennard, O.		First	10.00
R. Edwards, Center Village, O.	Lady Edwards		
Filly 1 Year Old and Under 2.			
W. W. Ferguson, Delaware, O.	Filly		
M. D. Willison, Croton, O.		First	10.00
William Sunkle, Granville, O.	Birdie B.	Second	5.00
Seymour Smith, Pataskala, O.	Which Way		
Geo. A. Geyer, Alton, O.	Wilkes		
E. S. McClellan, Kennard, O.			
Filly Colt.			
Chas. Robison, Kileville, O.	Filly Colt		
Chas. Jones, London, O.	Myrtle J.	First	5.00
B. F. Parcell, Reynoldsburg, O.	Rubia W.	Second	3.00
E. S. McClellan, Kennard, O.			
Pacing Horse, Mare or Gelding.			
W. W. Brimber, Cardington, O.	Gelding		
Turner & Mitchell, Columbus, O.		Second	10.00
C. V. Armstrong & Co., Sunbury, O.			
F. C. Brown, Bennington, O.			
B. F. Parcell, Reynoldsburg, O.	Sampson Girl		
Ed. Hall, Columbus, O.	Lady Smith	First	20.00
R. Edwards, Center Village, O.	Lady Edwards		
Stallion with 4 of His Colts.			
B. F. Parcell, Reynoldsburg, O.	Columbus Wilkes	First	25.00
Mare with 2 of Her Progeny.			
M. Douglas Willison, Croton, O.		First	20.00
Seymour Smith, Pataskala, O.			
Chas. Jones, London, O.			
Caleb Eubanks, Westerville, O.	Pitt		
R. H. Saxton, Granville, O.	Starlight		
E. S. McClellan, Kennard, O.			

C. M. JOHNSON, Expert Judge.

FRENCH COACH HORSES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
McLaughlin Bros., Columbus, O.		First	20.00
Same			
Same			
Same		Second	10.00
Stallion 3 Years Old and Under 4.			
McLaughlin Bros., Columbus, O.			
Same			
Same		Second	10.00
Same		First	20.00
Stallion Colt.			
Ransom Havens, Lewis Center, O.	Dandy	First	5.00
Filly Colt.			
Ransom Havens, Lewis Center, O.	Daisy	First	5.00
Stallion with 4 of His Colts.			
Ransom Havens, Lewis Center, O.	Philidon 1,589	First	25.00

C. H. Ganson, Urbana, O., Expert Judge.

GERMAN COACH HORSES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
Jonathan Hay & Son, Ashville, O.	Tom	First	20.00
Stallion 2 Years Old and Under 3.			
Wm. Wagner, Kileville, O.	Fitz S	First	10.00
Stallion 1 Year Old and Under 2.			
Jonathan Hay & Son, Ashville, O.		First	10.00

C. H. Ganson, Urbana, O., Expert Judge.

CLEVELAND BAYS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over.			
Jonathan Hay & Son, Ashville, O.	..	....	....
Stallion 3 Years Old and Under 4.			
Jonathan Hay & Son, Ashville, O.	..	....	....
Stallion 1 Year Old and Under 2.			
Jonathan Hay & Son, Ashville, O.	..	....	....
Mare 4 Years Old or Over.			
Turner & Mitchell, Columbus, O.	..	First......	15.00

C. H. GANSON, Urbana, O., Expert Judge.

HACKNEYS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over			
Beatty & Leonard, London, O.	Gay Lad	First......	20.00
Stallion 3 Years Old and Under 4.			
McLaughlin Bros., Columbus, O.	Satan	Second....	10.00
L. W. Cochran, Crawfordsville, Ind.	Louis Bischof	First......	20.00
Stallion 2 Years Old and Under 3.			
L. W. Cochran, Crawfordsville, Ind.	Indiana Swell 100	First......	10.00
Same	Flying Dash 99	Second....	5.00
Stallion 1 Year Old and Under 2.			
L. W. Cochran, Crawfordsville, Ind.	Pride of America 101	First......	10.00
Same	Gay Boy 105	Second....	5.00
Mare 4 Years Old or Over.			
Turner & Mitchell, Columbus, O.	....	First......	15.00
Beatty & Leonard, London, O.	Fashion	Second....	10.00

C. H. GANSON, Urbana, O., Expert Judge.

FRENCH DRAFT.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over			
Ed. Courtright, Galloway, O.	Picador 14,740		
McLaughlin Bros., Columbus, O.	Sylvio		
Same	Teuton		
Same	Pomard		
Same	Telephone		
Same	Carnot		
Same	Presbourg		
Same	Berry		
Same	Athos	First	20.00
L. W. Cochran, Crawfordsville, Ind.	Morton 12,472	Second	10.00
Stallion 3 Years Old and Under 4.			
McLaughlin Bros., Columbus, O.	Caton		
Same	Balaclaw		
Same	Charmont		
Same	Julius		
Same	Monarque		
Same	Avril		
Same	E. Mail		
Same	Lutrio	Second	10.00
L. W. Cochran, Crawfordsville, Ind.	Elsie's Jupiter 20,796	First	20.00
Stallion 2 Years Old and Under 3.			
McLaughlin Bros., Columbus, O.	Cluny.	Second	5.00
Same	Bastain		
Same	Malaga		
Same	Canotier		
Same	Sophocle		
Same	Jongleur		
Same	Behanzin		
Same	Bertrand		
L. W. Cochran, Crawfordsville, Ind.	Farris 22,279	First	10.00
Same	Harry Bee 22,280		
Stallion 1 Year Old and Under 2.			
Ed. Courtright, Galloway, O.	Billy		
P. J. Schaaf, Troyton, O.	Franklin 9,631	Second	5.00
McLaughlin Bros., Columbus, O.	Blancovia	First	10.00
D. L. Prichard, Radnor, O.	Phitarque, Jr.		
L. W. Cochran, Crawfordsville, Ind.	Prince Maurice 24,995		
Same			
Stallion Colt.			
W. W. Ferguson, Delaware, O.	Moreri, Jr. 9,965	Second	3.00
L. W. Cochran, Crawfordsville, Ind.	Rosetta's Jupiter 24,997	First	5.00
Mare 4 Years Old or Over.			
John Lyon, West Berlin, O.	Queen		
W. W. Ferguson, Delaware, O.	Coley 9,965		
Fleetwood Courtright, Columbus, O., Sta. A.	Lucy Dutch		
Same	Teen Dutch		
P. J. Schaaf, Troyton, O.	Daisy 9,630	Second	10.00
A. J. Forbert, Plain City, O.	Margaret		
Same	Gertrude	First	15.00
Mare 3 Years Old and Under 4.			
John Lyon, West Berlin, O.	Maria		
A. J. Forbert, Plain City, O.	Silvia	First	10.00
Same	Madge	Second	5.00
D. L. Prichard, Radnor, O.	Gypsy		
Mare 2 Years Old and Under 3.			
John Lyon, West Berlin, O.	Dinah	Second	5.00
F. P. Roloson, West Berlin, O.	Nelly		
W. W. Ferguson, Delaware, O.	Rosa	First	10.00

FRENCH DRAFT—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Filly 1 Year Old and Under 2.			
John Lyon, West Berlin, O.	Miss Brilliant	First	10.00
E. P. Roloson, West Berlin, O.	Nelly	Second	5.00
Filly Colt.			
W. W. Ferguson, Delaware, O.	Daisy 6,636	First	5.00
Stallion with 4 of His Colts.			
L. W. Cochran, Crawfordsville, Ind.	Morton	First	25.00
Mare with 2 of Her Progeny.			
John Lyon, West Berlin, O.	Queen and 2 Colts		
W. W. Ferguson, Delaware, O.		First	20.00

A. J. CLARK, Cambridge, O., Expert Judge.

CLYDESDALES AND SHIRES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 3 Years Old and Under 4.			
L. W. Cochran, Crawfordsville, Ind.	Champion Hawk 5,259	First	20.00
Stallion 2 Years Old and Under 3.			
Beatty & Leonard, London, O.	Sampson	First	10.00
L. W. Cochran, Crawfordsville, Ind.	Stamper 5,329	Second	5.00
Stallion 1 Year Old and Under 2.			
L. W. Cochran, Crawfordsville, Ind.	Matchless 5,324	First	10.00
Stallion Colt.			
L. W. Cochran, Crawfordsville, Ind.	Baron Mark 4,943	First	5.00
Mare 4 Years Old or Over.			
Beatty & Leonard, London, O.	Christmas		
Same	Trojan Belle	Second	10.00
L. W. Cochran, Crawfordsville, Ind.	Menova Gussie 4,996	First	15.00
Mare 3 Years Old and Under 4.			
Beatty & Leonard, London, O.	Trilby	First	10.00
Mare 2 Years Old and Under 3.			
Beatty & Leonard, London, O.	Ruth	First	10.00
Filly 1 Year Old and Under 2.			
Beatty & Leonard, London, O.	Flora	Second	5.00
Same	Maud	First	10.00
Filly Colt.			
Beatty & Leonard, London, O.	Fashion	First	5.00
Mare with 2 of Her Progeny.			
Beatty & Leonard, London, O.	Trojan Belle		
L. W. Cochran, Crawfordsville, Ind.	Menova Gussie 4,996	First	20.00

A J. CLARK, Cambridge, O., Expert Judge.

BELGIANS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 3 Years Old and Under 4.			
Ed. Courtright, Galloway, O.	Coq Du Village 730	Second	10.00
McLaughlin Bros., Columbus, O.		First	20.00

C. H. Ganson, Urbana, O., Expert Judge.

GRADE COACH HORSES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Gelding or Mare 4 Years Old or Over.			
W. M. Brimber, Cardington, O.		Second	5.00
Turner & Mitchell, Columbus, O.			
Same		First	10.00
McLaughlin Bros., Columbus, O.			
Gelding or Mare 3 Years Old and Under 4.			
W. M. Brimber, Cardington, O.		First	10.00
Howard Domigan, Berkshire, O.	John	Second	5.00
W. E. Garlinghouse, Galena, O.	Billy		
Turner & Mitchell, Columbus, O.	George		
Gelding or Mare 2 Years Old and Under 3.			
F. D. Pastle, Alton, O.	Star Chimes		
Geo. A. Geyer, Alton, O.	Nancy		
Howard Domigan, Berkshire, O.	Frank		
F. S. McClellan, Kennard, O.			
Gelding or Mare 1 Year Old and Under 2.			
E. S. McClellan, Kennard, O.			
Matched Team.			
Turner & Mitchell, Columbus, O.		First	10.00
Same		Second	5.00

C. H. Ganson, Urbana, O., Expert Judge.

GRADE DRAFT.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Gelding or Mare 4 Years Old or Over.			
W. W. Ferguson, Delaware, O.	...	Second....	5.00
Howard Domigan, Berkshire, O.	Elias	First......	10.00
John Fladt, Camp Chase, O.	Daisy	....	....
Same	Blanche	....	....
Gelding or Mare 3 Years Old and Under 4.			
Elmer Roloson, West Berlin, O.	Topsy	First......	10.00
Gelding or Mare 2 Years Old and Under 3.			
Howard Domigan, Berkshire, O.	Wort	First......	10.00
John Fladt, Camp Chase, O.	Maud	Second....	5.00
Gelding or Mare 1 Year Old and Under 2.			
Elmer Roloson, West Berlin, O.	Dewdrop	First......	10.00
Matched Team.			
Howard Domigan, Bergshire, O.	Elias and September	First......	15.00
John Fladt, Camp Chase, O.	Daisy and Nellie	....	....
James Kincaid, Columbus, O.	Muncey and Mack	....	....
The Kauffman Latimer Co., Columbus, O.	Tom and Dave	Second....	8.00

A. J. CLARK, Cambridge, O., Expert Judge.

SADDLE HORSES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 4 Years Old or Over			
Brown Saddle Horse Academy, Columbus, O.	Dutch Forsythe	Second....	8.00
E. L. McCollem, Columbus, O.	Wilmore	First......	15.00
Mare 4 Years Old or Over.			
Hazeltine Bros., Youngstown, O.	Fern Leaf	Second....	8.00
E. L. McCollem, Columbus, O.	Frost. . .	First......	15.00
Mare Under 4 Years.			
E. L. McCollem, Columbus, O.	Alice P.	First......	10.00
Gelding 4 Years Old or Over.			
J. C. Campbell, Columbus, O.	Bob C.	Second....	8.00
Charles Dick, Akron, O.	Walter	....	....
Starling Loving, Columbus, O.	Walker	....	....
James Kincaid, Columbus, O.	Dan K.	First......	15.00
Gardner Lattimer, Columbus, O.	Nathan B.	....	....
E. L. McCollem, Columbus, O.	Brown Silk	....	....
Same	Black Prince	....	....
Gelding Under 4 Years.			
E. L. McCollem, Columbus, O.	Gray Squirrel	First......	10.00

C. M. JOHNSON, Expert Judge.

COMBINED HARNESS AND SADDLE HORSES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion Any Age.			
Brown Saddle Horse Academy, Columbus, O.	Dutch Forsythe	Second	8.00
Frank Tallmadge, Columbus, O.	Fulton Denmark		
E. L. McCollem, Columbus, O.	Wilmore	First	15.00
Mare or Gelding Any Age.			
J. C. Campbell, Columbus, O.	Bob C.	Second	8.00
E. L. McCollem, Columbus, O.	Brown Silk	First	15.00
Same	Black Prince		
James Kincaid, Columbus, O.	Dan K.		
Gardner Lattimer, Columbus, O.	Nathan B.		

HIGH SCHOOL HORSE, MARE OR GELDING.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Hazeltine Bros., Youngstown, O.	Fern Leaf	Second	8.00
E. L. McCollem, Columbus, O.		First	15.00

C. M. JOHNSON, Expert Judge.

MATCHED HORSES AND FANCY DRIVERS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Pair Matched Roadsters.			
Turner & Mitchell, Columbus, O.		First	20.00
Same			
F. C. Brown, Bennington, O.			
E. L. McCollem, Columbus, O.		Second	10.00
Gentlemen's Fancy Driving Team.			
Turner & Mitchell, Columbus, O.		Second	10.00
Same		First	20.00
C. V. Armstrong & Co., Sunbury, O.			
A. E. Davis, Columbus, O.	Fitzsimmons & Bob's Girl		
E. L. McCollem, Columbus, O.			
Gentlemen's Fancy Single Driver.			
W. M. Brimbler, Cardington, O.			
Turner & Mitchell, Columbus, O.		First	10.00
Same		Second	5.00
J. W. H. Stalter, Wagram, O.	James R.		
Brown Saddle Horse Academy, Columbus, O.	Peaches and Cream		
J. A. Hall, Columbus, O.	Walnut Boy		
C. V. Armstrong & Co., Sunbury, O.			
F. C. Brown, Bennington, O.			
E. L. McCollem, Columbus, O.	Burdell, Jr.		
Miss Zora Foster, Sunbury, O.	Fred H.		
A. E. Davis, Columbus, O.	Bob Fitzsimmons, Jr.		
Same	Bell Boyd		
Phil Manges, Pataskala, O.			
E. S. McClellan, Kennard, O.			

MATCHED HORSES AND FANCY DRIVERS — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Single Horse Driving by a Lady.			
Turner & Mitchell, Columbus, O.		First	5.00
Same		Second	3.00
Brown Saddle Horse Academy, Columbus, O.	Peaches and Cream		
Geo. Garlinghouse, Johnstown, O.			
F. C. Brown, Bennington, O.			
Miss Zora Foster, Sunbury, O.	Kit		
A. E. Davis, Columbus, O.	Bob Fitzsimmons, Jr.		
E. S. McClellan, Kennard, O.			
Double Team Driving by a Lady.			
Turner & Mitchell, Columbus, O.		First	10.00
Same		Second	5.00
F. C. Brown, Bennington, O.			
A. E. Davis, Columbus, O.			

C. M. Johnson, Expert Judge.

SHETLAND PONIES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion, 3 Years Old or Over.			
Stephen Lyle, White Cottage, O.		Second	8.00
M. Worthington, Plain City, O.	Billy		
Cobb Gavitt, Ashley, O.	Ben	First	15.00
Same	John		
Stallion 2 Years Old and Under 3.			
Cobb Gavitt, Ashley, O.	Nip	Second	5.00
Same	Tuck		
E. L. McCollem, Columbus, O.	Earl's Dandy	First	10.00
Stallion 1 Year Old and Under 2.			
Cobb Gavitt, Ashley, O.	Sam	First	5.00
Same	Dick	Second	3.00
Stallion Under 1 Year.			
Cobb Gavitt, Ashley, O.		First	3.00
Mare 3 Years Old or Over.			
Stubert Turpie, Columbus, O.	Ruth		
Cobb Gavitt, Ashley, O.	Kate	First	10.00
Same	Susie		
Charles Dick, Akron, O.		Second	5.00
Mare 2 Years Old and Under 3.			
Cobb Gavitt, Ashley, O.	Mamie	First	10.00
Same	Molly	Second	5.00
Filly 1 Year Old and Under 2.			
Cobb Gavitt, Ashley, O.	Midget	First	5.00
Same	Fan	Second	3.00
Filly Under 1 Year.			
Cobb Gavitt, Ashley, O.		First	3.00
Same		Second	2.00
Herd of not less than 12.			
Cobb Gavitt, Ashley, O.		First	20.00

A. J. Clark, Cambridge, O., Expert Judge.

PONIES.

All Breeds, Except Shetlands.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Stallion 3 Years Old or Over.			
Brown Saddle Horse Academy, Columbus, O.	Dandy	First	15.00
Levi Furguson, Newark, O	Dan D.	Second	8.00
Stallion 2 Years Old and Under 3.			
Cobb Gavitt, Ashley, O		First	10.00
Mare 3 Years Old or Over.			
Cobb Gavitt, Ashley, O		First	10.00
Same		Second	5.00
Joyce Byrne, Columbus, O	Donnie		
Mare 2 Years Old and Under 3.			
Cobb Gavitt, Ashley, O		First	10.00
Same		Second	5.00
Levi Furguson, Newark, O	Lena		

A. J. CLARK, Cambridge, O., Expert Judge.

PONY TURNOUTS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Single Turnout Driven by Boy or Girl Under 14 Years.			
Stephen Lyle, White Cottage, O			
Cobb Gavitt, Ashley, O		Second	5.00
Same			
Brown Saddle Horse Academy, Columbus, O.	Dandy D.	First	10.00
Charles Dick, Akron, O	McKinley		
E. L. McCollem, Columbus, O	Earl's Dandy		
Harden Church, Columbus, O	Dewey		
Double Team Driven by a Boy or Girl Under 14 Years.			
Stephen Lyle, White Cottage, O			
Cobb Gavitt, Ashley, O		First	12.00
Same			
Brown Saddle Horse Academy, Columbus, O.	Lady O and Muncy		
Charles Dick, Akron, O		Second	6.00
Tandem			
Cobb Gavitt, Ashley, O		First	10.00
Same		Second	5.00
Four-in-Hand.			
Cobb Gavitt, Ashley, O		First	12.00
Same		Second	6.00

A. J. CLARK, Cambridge, O., Expert Judge.

SPECIAL PREMIUMS.

Offered by the French Coach Horse Society of America

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
McLaughlin Bros., Columbus, O.	Tate Vin 2,401	First	25.00
Same	Siffleur 2,318	Second	15.00
Same	Capageur 2,405	Third	10.00

Offered by the American Percheron Horse Breeders' Association.

McLaughlin Bros., Columbus, O.	Monarch	First	25.00
Same	Silvia	Second	15.00
L. W. Cochran, Crawfordsville, Ind.	Farris 22,279	Third	10.00

A. J. Clark, Cambridge, O., Expert Judge.

SUMMARY OF THE RACES.

2:40 CLASS—TROTTING.

Entered by	Name of Animal	Heats.
Valentine Bros., Circleville, O.	Maggie V.	13 6 4 8 2 .. ..
T. B. Finley, Columbus, O.	Valiant, blk. g.	8 4 6 7 8 .. ..
D. M. Bell, Leonardsburg, O.	Miss Posey, ch. m.	9 13 12 3 5 .. ..
Chas. Allen, Washington C. H., O.	Hortense, br. m.	6 8 11 10 9 .. ..
A. W. Gordon, Toledo, O.	Mabel G, gr. m.	4 2 2 2 1 1 1
W. C. Estes, Winchester, Ky.	Nineta, br. m.	2 5 5 5 4 .. ..
C. W. Frazier, Black Run, O.	Billy Foster Boy, b. g.	7 12 7 6 6 .. ..
C. A. Valentine, Columbus, O.	Red Bird, b. g.	1 1 3 4 7 3 3
E. J. Merkle, Columbus, O.	Lizzie M., b m.	11 10 10 Dr.
D. A. Sprague, So. Charleston, O.	Rankin, ch. g.	10 7 8 9 Dr.
J. W. Smithers, Washington C. H., O.	Mamie A., gr. m.	3 3 1 1 3 2 2
O. P. Lenox, Richwood, O.	David Harum, b. g.	12 11 9 Dr.
A. B. Grove, Newark, O.	Almerion, b. s.	5 9 13 Dr.

Time — 2.28½, 2.22¼, 2.21¼, 2.21¼, 2.24½, 2.24½, 2.26¼.

2:35 CLASS—PACING.

Entered by	Name of Animal	Heats.
W. C. Estes, Winchester, Ky.	The Ghost, gr. g.	3 4 8
J. Maxwell, Mt. Gilead, O.	Cardigan Girl, gr. m.	4 2 3
W. F. Hull, Newark, O.	Maggie Patchen, ch. m.	7 5 5
S. C. Phillips, Washington C. H., O.	Honest John, so. g.	1 1 1
D. A. Sprague, So. Charleston, O.	Claytie Wilton, br. m.	9 3 4
Carl Rooks, Toledo, O.	Xava, ch. m.	5 7 2
D. M. Lake, Columbus, O.	Gold Coin. b. g.	8 8 6
J. W. H. Stalter, Wagram, O.	Alert, Jr., b. s.	6 9 Dr.
M. W. Morris, Bloomingburg, O.	Bessie Coastman, m.	2 6 7

Time — 2.21¼, 2.18¼, 2.18¼.

2:23 CLASS—TROTTING.

Entered by	Name of Animal	Heats.
F. M. McIntire, Rudolph, O.	Ambury,	6 12 Dr.
G. E. Van Natta, Newark, O.	Josephine. ch. m.	5 4 6
J. B. Ryland, Cincinnati, O.	Rutherford, b. g.	2 2 2
F. B. Mitchell, Philadelphia, Pa.	Molo, b. g.	7 6 3
John A. Hall, Columbus, O.	Chicago Prince, b. s.	3 11 5
W. N. Albin, Enon, O.	Robbie Lee, b. g.	12 9 10
Ed. Wood, Hyde Park, O.	Rob Roy, blk. h.	9 7 7
Jos. T. Deardoff, Lebanon, O.	R. K. Fox, br. s.	4 8 Dr.
A. T. Tallman, Prospect, O.	Zip, b. m.	10 3 9
Guy W. Lee, Celina, O.	Supera	8 10 4
F. Van Voorhis, Zanesville, O.	Ariel Highwood, b. h.	1 1 1
Wm. Shipley, Washington C. H., O.	Robert T., so. g.	11 5 8

Time — 2.20¼, 2.20½, 2.20½.

RUNNING — ONE MILE DASH.

Entered by	Name of Animal.	Heat.
Wm. Haithcock, Washington C. H., O.	Tidiness, b. m.	4
J. P. Morris, Union City, Tenn.	Forbearance, s. m.	1
Scott Davis, Madison Mills, O.	Bumblebee, br. g.	3
Claud Melnot, Chillicothe, O.	Mellie M., b. m.	5
Robert Morrell, Sabina, O.	Revenge, br. g.	2

Time — 1.46½.

2:11 CLASS—PACING.

Entered by	Name of Animal	Heats.
Alfred Dunn, Sabina, O.	G. W. D., blk. s.	1 3 4 4
Guy M. Lee, McKees Rock, Pa.	Bonnie, ro. s.	5 1 1 1
Hamilton Bros., Bellefontaine, O.	Minnie Irene, ro. m.	2 4 3 3
Jos. T. Deardoff, Lebanon, O.	Mildura, br. s.	3 5 5 5
J. E. Williams, Upper Sandusky, O.	Billy J., b. g.	7 6 6 6
Ed. Wood, Hyde Park, O.	Tom Wilkes, ch. s.	4 7 Dis.
C. A. Valentine, Columbus, O.	Haema Patchen, b. g.	6 2 2 2

Time — 2.16¼, 2.13, 2.14½, 2.15½.

2:19 CLASS—PACING.

Entered by	Name of Animal	Heats.
Grant W. Pritz, Dayton, O.	Cuba, b. m.	12 6 9
T. H. Gaitskill, Escondida, Ky.	Affie b. m.	6 9 5
J. C. Ruhl, Delaware, O.	So-Sure, b. s.	7 Dr.
L. D. Converse, Urbana, O.	Rossette, ro. m.	1 1 1
F. D. Burnham, Mechanicsburg, O.	Be-Sure, Jr.	9 10 10
J. F. Cherry, Lancaster, O.	Red Rock, b. g.	4 2 2
C. A. Slaight, Sabina, O.	Minnie Strathmore, b. m.	3 4 7
F. & T. E. Drake, Lebanon, O.	Roamer, b. g.	11 11 11
Al. Honaker, Springfield, O.	Nannie C. ro. m.	8 8 6
D. W. & J. O'Brien, North Lewisburg, O.	Lady Hansley, gr. m.	2 8 3
J. P. Bowers, Pickerington, O.	Star Tom, s. s.	10 5 8
D. M. Lake, Columbus, O.	Insure, b. g.	5 7 4

Time — 2.19¼, 2.18¼, 2.18¼.

RUNNING — HALF-MILE HEATS.

Entered by	Name of Animal	Heats.
Ed. E. Peck, Cleveland, O.	Cora R., b. m.	4 4 ..
S. W. Lyon, Columbus, O.	Duplicate, br. m.	1 2 2
J. P. Morris, Union City, Tenn.	Ada Russell, s. m.	2 1 1
J. C. Carmody, Chillicothe, O.	Daily Racing Form, br. s.	5 5 ..
Williams Davis, Madison Mills, O.	Grasshopper, b. g.	3 3 ..

Time — .51, .51, .51½.

2:19 CLASS—TROTTING.

Entered by	Name of Animal	Heats.
A. W. Gordon, Toledo, O.	Morning Glory, br. m.	4 3 3 3 3
L. O. Kell, Lebanon, O.	Elliott Stone, gr. g.	1 1 2 2 2
J. W. Townsley, Jamestown, O.	Royal Wood, blk. s.	2 2 1 1 1
C W. Barr, Dayton, O.	Moses, gr. g.	5 Dr.
W. N. Albin, Enon, O.	Bobbie Lee, b. g.	3 4 4 4 4

Time — 2.24, 2.21¼, 2.20¼, 2.25½, 2.22½.

2:25 CLASS—PACING.

Entered by	Name of Animal.	Heat.
Roy Dickson, Ontario, O.	Belle Shaffer, blk. m.	3 5 4 6 4
Carl Rooks, Toledo, O.	Xava, ch. m.	2 3 2 5 3
S. C. Phillips, Washington C. H., O.	Honest John, so. g.	1 1 9 9 9
F. O. Johnson, Clairborn, O.	Nutmeg, ch. s.	10 6 3 7 7
Elliott Henry, Circleville, O.	Happy Diam, blk. m.	8 7 7 3 2
L. S. Braddock, Mt. Vernon, O.	Blue Bell	4 2 1 1 1
D. M. Lake, Columbus, O.	Bert Wilkes, b. g.	8 7 7 3 6
C M. Rowlee, Lancaster, O.	Chestnut, br. g.	5 8 5 4 5
W. F. Hull, Newark, O.	Nellie Richmond, br. m.	7 10 10 Dr.
J. C. Ruhl, Delaware, O.	Parachute, so. g.	9 4 6 8 8

Time — 2.18¼, 2.18¼, 2.18¼, 2.21½, 2.22½.

2:30 CLASS—TROTTING.

Entered by	Name of Animal	Heats.
A. B. Staley, Bakes Creek, O.	Mary Mack, b .m.	5 5 5
E. L. Riley, Bullittsville, Ky.	Fannie Riley, ch. m.	2 6 2
O. S. Jones, Columbus, O.	Daisy M., blk. m.	3 3 4
John Intzi, Middletown, O.	Pearl Sill	1 1 1
D. A. Sprague, So. Charleston, O.	Bonner Bell, br. s.	4 2 3
W. N. Albin, Enon, O.	Elwood M., b. g.	6 4 6

Time — 2.29¼, 2.29¼, 2.29¼.

RUNNING — ONE MILE DASH.

Entered by	Name of Animal.	Heat.
J. P. Morris, Union City, Tenn.	Forbearance, s. m.	1
S. W. Lyon, Columbus, O.	Dauntless	4
Robert Morrell, Sabina, O.	Revenge, br. g.	2
Scott Davis, Madison Mills, O.	Bumblebee, br. g.	3
Wm. Haithcock, Washington C. H., O.	Tidiness, b. m.	6
Matthews & Dew, Chicago, Ill.	Our Lida, s. m.	5

Time — 1.46.

RUNNING — HALF-MILE HEATS.

Entered by	Name of Animal	Heats.
J. T. Carmody, Chillicothe, O	Daily Racing Form, br. s.	3 2
H. Du Lawrence, Cleveland, O	Cadiz	4 ..
J. P. Morris, Union City, Tenn	Ada Russell, so. m	1 1
Ed. Cook, Richwood, O	Rouble, b. g	2 3
C. E. Howard, Cleveland, O	Tally Ho, ch. g	5 ..
Ed. E. Peck, Cleveland, O	Cora R., b. m	6 ..

RUNNING — DASH OF SEVEN FURLONGS.

Entered by	Name of Animal.	Heat.
Wm. Haithcock, Washington C. H., O	Tidiness, b. m	2
Chas. Talbot, Columbus, O	Tillie Herr, b. m	3
Robert Morrell, Sabina, O	Revenge, br. g	1

Time — 1.35.

RUNNING — ONE MILE DASH TO HARNESS.

Entered by	Name of Animal.	Heat.
H. S. Franklin, Columbus, O	Short Side, b. g	2
S. W. Lyon, Columbus, O	Kelly's High Ball, br. g	1
F. Hays, Columbus, O	Bay Side, b. g	3

Time — 2.08.

RUNNING — HALF-MILE HEATS.

Entered by	Name of Animal	Heats.
Ed. E. Peck, Cleveland, O	Cora R., b. m	1 3 2
Chas. Talbot, Columbus, O	Tillie Herr, b. m	4 2 ..
Ed. Cook, Richwood, O	Rouble, b. g	2 1 1
C. E. Howard, Cleveland, O	Emily S	3 4 ..

Time — .54, .54½, .55.

RUNNING — HALF-MILE DASH.

Entered by	Name of Animal.	Heat.
S. W. Lyon, Columbus, O	Duplicate, br. m	1
H. Du Lawrence, Cleveland, O	Cadiz, b. g	2
Ed. E. Peck, Cleveland, O	Cora R., b. m	3

Time — .51½.

RUNNING — PONIES — HALF-MILE HEATS.

Entered by	Name of Animal.	Heat.
Cobb Gavitt, Ashley, O.	Kate R	2
Same	Laura C.	1
Stephen Lyle, White Cottage, O.	Gray Pony	3
Cobb Gavitt, Ashley, O.	Maud G.	4

Time — 1.10½.

CATTLE—J. S. STUCKEY, Member in Charge.

SHORTHORNS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old or Over.			
Aaron Barber, Avon, N. Y.	Alice's Prince	First	15.00
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.	Brave Archer	Second	10.00
Same	Viceroy of Anoka	Third	5.00
C. Hints & Sons, Fremont, O.	Colonel.		
Bull 2 Years Old and Under 3.			
Darling Bros., Nellie, O.	Abberdeen III	Second	10.00
King & Hempstead, Port Williams, O.	Baron Duke		
T. S. Seigley, Tiffin, O.	Butterfly King	Third	5.00
Jos. Witter, College Corner, O.	Verbenas Monarch	First	15.00
Bull 1 Year Old and Under 2.			
Darling Bros., Nellie, O.	Duke of Mohawk		
Thomas A Cotten & Sons, Manilla, Ind.	Jack		
C. Hintz & Sons, Fremont, O.	Royal Star	Third	5.00
C. L. Gerlaugh, Osborn, O.	Conqueror	First	15.00
C. F. Rice, Indianola, Ill.	Red Land	Second	10.00
J. D. Douglass & Son, Sulphur Hill, Ind.			
Bull Under 1 Year Old.			
Aaron Barber, Avon, N. Y.	Sentinel	Second	12.00
Darling Bros., Nellie, O.	Duke of Mohawk 2d		
Same			
Thos. A. Cotten & Sons, Manilla, Ind.	Jill		
U. S. McKay, Lumberton, O.	Morning Sun		
C. Hintz & Sons, Fremont, O.	Pride Star	Fourth	H'y com.
Same	Landlord 2d	Fifth	Com'd
C. F. Gerlaugh, Osborn, O.	Royal Crescent		
C. F. Rice, Indianola, Ill.	Marcos	First	15.00
Jos. Witter, College Corners, O.	Monarch's Champion		
J. D. Douglass & Son, Sulphur Hill, Ind.		Third	10.00
Cow 3 Years Old or Over.			
Aaron Barber, Avon, N. Y.	Duchess 2d	Third	5.00
Same	Flower Wreath 3d		
T. S. Seigley, Tiffin, O.	Della		
Darling Bros., Nellie, O.	Golden Bell II		
E. S. Kelley, Yellow Springs, O.	Mildred Sixth		
Same	Bapton Pearl	First	15.00
C. Hintz & Sons, Fremont, O.	Oxford Bell		
Same	Ruby Hill		
C. F. Rice, Indianola, Ill.	Lucy Ann	Second	10.00
Jos. Witter, College Corners, O.	Nora		
Cow or Heifer 2 Years Old and Under 3.			
Aaron Barber, Avon, N. Y.	Julia Marshall	First	15.00
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.	Rosy Morn	Third	5.00
C. Hintz & Sons, Fremont, O.	Wild Duchess Mary		
Same	Beauty of Orient		
Jos. Witter, College Corners, O.	Sensation	Second	10.00

SHORTHORNS — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Heifer 1 Year Old and Under 2.			
Aaron Barber, Avon, N. Y.	Rose Scott		
Darling Bros., Nellie, O.	Belle of Warsaw		
E. S. Kelley, Yellow Springs, O.	Queen of the Louans	First	15.00
Thos. A. Cotten & Sons, Manilla, Ind.	Thelma	Third	5.00
Same	Ethel		
C. Hintz & Sons, Fremont, O.	Wild Duchess Mary II		
Same	Beauty of Mermaid		
C. F. Gerlaugh, Osborn, O.	Clopatree		
Same	Missey	Second	10.00
Same	Becca Princess		
C. F. Rice, Indianola, Ill.	Marmaduke's Lady		
Same	Patte Napier of Homewood		
Jos. Witter, College Corners, O.	Elizabeth		
J. Douglass & Son, Sulphur Hill, Ind.			
Heifer Calf.			
Aaron Barber, Avon, N. Y.	Golden Fames Belle	First	15.00
Darling Bros., Nellie, O.			
Same			
E. S. Kelley, Yellow Springs, O.	Mina Larmder	Second	12.00
Thos. A. Cotten & Sons, Manilla, Ind.	Marie 2d	Fourth	H'y com.
Same	Louise		
U. S. McKay, Lumberton, O.	Lady Lavender	Third	10.00
Same	Ruby Lavender		
Same	Sweet Lavender		
C. Hintz & Sons, Fremont, O.	Wild Duchess Mary III		
Same	Young Mary 16th		
L. E. Jones, Rob Roy, Ind.	Gem of Pearls		
Same	Queen Hamilton		
C. L. Gerlaugh, Osborn, O.	Charity	Fifth	Com'd.
Same			
Same			
Same			
C. F. Rice, Indianola, Ill.			
Same			
Jos. Witter, College Corners, O.			
J. D. Douglass & Son, Sulphur Hill, Ind.			
Same			
Same			
Same			

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Herd Owned by Exhibitor.			
Aaron Barber, Avon N. Y.		First	30.00
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.		Second	20.00
C. Hintz & Sons, Fremont, O.			
Jos. Witter, College Corners, O.		Third	10.00
BREEDER'S HERDS.			
Young Herd.			
Darling Bros., Nellie, O.			
Thos. A. Cotten & Sons, Manilla, Ind.		Third	10.00
C. Hintz & Sons, Fremont, O.			
C. F. Gerlaugh, Osborn, O.		First	30.00
C. F. Rice, Indianola, Ill.		Second	20.00

SWEEPSTAKES—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Four Animals to the Get of One Sire.			
U. S. McKay, Lumberton, O.			
C. Hintz & Sons, Fremont, O.			
C. F. Gerlaugh, Osborn, O.		First	15.00
C. F. Rice, Indianola, Ill.		Second	10.00
J. D. Douglass & Son, Sulphur Hill, Ind.		Third	5.00
Two Animals Produce of One Cow.			
Aaron Barber, Avon, N. Y.		First	15.00
Darling Bros., Nellie, O.		Third	5.00
C. Hintz & Sons, Fremont, O.		Second	10.00
Douglass & Son, Sulphur Hill, Ind.			
Four Calves.			
Darling Bros., Nellie, O.			
U. S. McKay, Lumberton, O.		Second	15.00
C. Hintz & Sons. Fremont, O.			
C. F. Gerlaugh, Osborn, O.		First	20.00
Douglass & Son, Sulphur Hill, Ind.		Third	10.00

Expert Judges, John Gosling, G. M. Roudebush.

HEREFORDS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old or Over			
John Hooker, New London, O.	Ike	First	15.00
Bull 2 Years Old and Under 3.			
John Hooker, New London, O.	Mark Hanna	First	15.00
Bull 1 Year Old and Under 2.			
John Hooker, New London, O.	Foxy	First	10.00
Same	Maplewood Boy 3d	Second	5.00
Bull Under 1 Year Old.			
John Hooker, New London, O.	Cake Walk	First	10.00
Same	Maple Prince	Second	5.00
Same	Boabdil, Jr.	Third	3.00
Cow 3 Years Old or Over.			
John Hooker, New London, O.	Dolly 2d	First	15.00
Same	Maple Leaf	Second	10.00
Same	Lady L 2d	Third	5.00
Cow or Heifer 2 Years Old and Under 3.			
John Hooker, New London, O.	Belle of Maplewood 2d	First	15.00
Same	Dinah J. 2d	Second	10.00
Heifer 1 Year Old and Under 2.			
John Hooker, New London, O.	Belle of Maplewod 3d	First	10.00
Same	Peerless Queen	Second	5.00
Same	Peerless of Maplewood	Third	3.00
Heifer Under 1 Year Old.			
John Hooker, New London, O.	Maplewood Girl	Second	5.00
Same	Peerless of Maplewood 2d	Third	3.00
Same	Belle of Maplewood 4th	First	10.00

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by Exhibitor.			
John Hooker, New London, O.		First	40.00
BREEDER'S HERD.			
Young Herd Bred and Owned by Exhibitor.			
John Hooker, New London, O.		First	40.00
Four Animals Get of One Sire.			
John Hooker, New London, O.		First	30.00
Two Animals the Produce of One Cow.			
John Hooker, New London, O.		First	10.00

Expert Judges, John Gosling, G. M. Roudebush.

JERSEYS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old and Over.			
H. N. Higinbotham, Joliet, Ill.	King of Arden	Second	10.00
Biltmore Farms, Baltimore, N. C.	Golden Blaze	First	20.00
Same			
Brooks & Pidgeon, Salem, O.	Nances Exile		
Mrs. Jennie E. Hall, Granville, O.			
J. A. Peasley, Worthington, O.	Recorder's Merry Boy		
L. S. McClellan, Cable, O.			
Same			
Bull 2 Years Old and Under 3.			
H. N. Higinbotham, Joliet, Ill.	Wallack		
Biltmore Farms, Baltimore, N. C.	Golden Lad Successor	First	20.00
Brooks & Pidgeon, Salem, O.	Klondike Golddust	Second	10.00
L. S. McClellan, Cable, O.			
Bull 1 Year Old and Under 2.			
H. N. Higinbotham, Joliet, Ill.	Prince of Arden	Second	5.00
Same	Czar of Aden		
Biltmore Farms, Baltimore, N. C.	Golden Boy Biltmore	First	10.00
Brooks & Pidgeon, Salem, O.	Nances Andalusia Boy		
Mrs. Jennie E. Hall, Granville, O.			
L. S. McClellan, Cable, O.			
Bull Under 1 Year Old.			
H. N. Higinbotham, Joliet, Ill.	Duke of Arden	First	5.00
Same	Monarch of Arden		
Biltmore Farms, Baltimore, N. C.	Noble Gen. Gordon	Second	3.00
Same	Pease's Golden Lad		
Same	Golden Lad		
Brooks & Pidgeon, Salem, O.	Andalusia Combine		
J. A. Peasley, Worthington, O.	Recorder's Landseer		
L. S. McClellan, Cable, O.			

JERSEYS — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Cow 3 Years Old and Over.			
H. N. Higinbotham, Joliet, Ill.	Surprise of Arden		
Same	Daisy of Lancaster	First	15.00
Same	Lady G. of Menlo		
Biltmore Farms, Baltimore, N. C.	Garland Biltmore	Second	10.00
Same			
Same			
Brooks & Pidgeon, Salem, O.	Palestine Bess		
L. S. McClellan, Cable, O.			
Cow or Heifer 2 Years Old and Under 3.			
H. N Higinbotham, Joliet, Ill.	Templars Lass of Arden	First	10.00
Same	Carmelas Maid		
Brooks & Pidgeon, Salem, O.	Amelia S. King II.		
L. S. McClellan, Cable, O.			
Biltmore Farms, Baltimore, N. C.	Garland of Biltmore	Second	5.00
Same			
Same			
Same			
Heifer 1 Year Old and Under 2.			
H. N. Higinbotham, Joliet, Ill.	Daisy of Lancaster II.	First	10.00
Same	Sultana of Arden		
Biltmore Farms, Baltimore, N. C.	Golden Love Rosebud	Second	5.00
Same			
Brooks & Pidgeon, Salem, O.	Myrtle of Andalusia		
J. A. Peasley, Worthington, O.	Recorder's Violet		
W. H. Forbes, Clifton, O.	Lunon Pedro		
L. S. McClellan, Cable, O.			
Heifer Under 1 Year Old.			
H. N. Higinbotham, Joliet, Ill.	Pearle of Arden		
Same	Pride of Arden	Second	3.00
Biltmore Farms, Baltimore, N. C.	Trevarth's Xarama	First	5.00
Same			
Brooks & Pidgeon, Salem, O.	Andalusia Pearle		
L. S. McClellan, Cable, O.			
Same			
Same			
Same			

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by the Exhibitor.			
H. N. Higinbotham, Joliet, Ill.	King of Arden	First	40.00
Biltmore Farms, Baltimore, N. C.			
Brooks & Pidgeon, Salem, O.			
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
H. N. Higinbotham, Joliet, Ill.			
Biltmore Farms, Baltimore, N. C.		First	40.00
Brooks & Pidgeon, Salem, O.			

SWEEPSTAKES — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Four Animals the Get of One Sire.			
H. N. Higinbotham, Joliet, Ill.			
Biltmore Farms, Baltimore, N. C.		First	30.00
Brooks & Pidgeon, Salem, O.			
Two Animals the Produce of one Cow.			
H. N. Higinbotham, Joliet, Ill.			
Biltmore Farms, Baltimore, N. C.			
Brooks & Pidgeon, Salem, O.			
L. S. McClellan, Cable, O.		First	10.00

Expert Judges, Henry Du Bois, Clayton C. Taylor.

POLLED JERSEYS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old and Over.			
James R. Orr, Cedarville, O	Pride	First	20.00
W. H. Forbes, Clifton, O.	Ensign	Second	10.00
Bull 2 Years Old and Under 3.			
James R. Orr, Cedarville, O	Monica	First	20.00
Bull 1 Year Old and Under 2.			
James R. Orr, Cedarville, O	Renas Romp	First	10.00
W. H. Forbes, Clifton, O.	Bobolink		
James R. Orr, Cedarville, O	Rossvelt	Second	5.00
Bull Under 1 Year Old.			
James R. Orr, Cedarville, O		First	5.00
Cow 3 Years Old or Over.			
James R. Orr, Cedarville, O	Rena	First	15.00
Same	Lady's Gem		
W. H. Forbes, Clifton, O.	Minnie S.	Second	10.00
Same	Nubbin Ridge Queen		
Cow or Heifer 2 Years Old and Under 3.			
James R. Orr, Cedarville, O	Rommy Bly	Second	5.00
W. H. Forbes, Clifton, O.	Bessie L.	First	10.00
Heifer 1 Year Old and Under 2.			
James R. Orr, Cedarville, O	Countess	Second	5.00
Same	Marcel	First	10.00
W. H. Forbes, Clifton, O.	Forbes' Beauty		
Same	Ora Lyle		
Heifer Under 1 Year Old.			
James R. Orr, Cedarville, O.		First	5.00
Same		Second	3.00
W. H. Forbes, Clifton, O.			
Same			

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD			
Graded Herd Owned by Exhibitor.			
James R. Orr, Cedarville, O		First	40.00
W. H. Forbes, Clifton, O.			
BREEDER'S HERD.			
Young Herd Bred and Owned by Exhibitor.			
James R. Orr, Cedarville, O		First	40.00
W. H. Forbes, Clifton, O.			
Four Animals the Get of One Sire.			
James R. Orr, Cedarville, O		First	30.00
W. H. Forbes, Clifton, O.			
Two Animals the Produce of One Cow.			
James R. Orr, Cedarville, O.		First	10.00
Same			
W. H. Forbes, Clifton, O.			

Expert Judges, Clayton C. Taylor, John Gosling.

GUERNSEYS.

Owner's Name and Postoffice.	Name of Animal.	Premium	Amount.
Bull 3 Years Old or Over.			
McCormick & Edgerly, Pataskala, O.	Glendon	Second	$10.00
L. V. Axtell, Perry, O.	Fennemore Prince	First	20.00
Bull 2 Years Old and Under 3.			
L. V. Axtell, Perry, O.	La Pierres Honor	First	20.00
Bull 1 Year Old and Under 2.			
L. V. Axtell, Perry, O.	Chas. of Homestead	Second	5.00
McCormick & Edgerly, Pataskala, O.	Glencarn		
Same	Juda	First	10.00
Bull Under 1 Year Old.			
McCormick & Edgerly, Pataskala, O.	Mathew Quay	Second	3.00
L V. Axtell, Perry, O.	Jones of Homestead	First	5.00
Same	Prince Edward		
Cow 3 Years Old or Over.			
McCormick & Edgerly, Pataskala, O.	Emma Porter		
Same	Daisy E.	Second	10.00
L. V. Axtell, Perry, O.	Dollys Ada	First	15.00
Same			
Cow or Heifer 2 Years Old and Under 3.			
McCormick & Edgerly, Pataskala, O.	Princess May		
Same	Princess Ida	Second	5.00
L. V. Axtell, Perry, O.	Gilded Emerand	First	10.00
Same	Queen of Homestead		

GUERNSEYS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Heifer 1 Year Old and Under 2.			
McCormick & Edgerly, Pataskala, O.	Princess Bess	First	10.00
Same	Princess Pansy		
L. V. Axtell, Perry, O.	Hermosa of Homestead		
Same	Carrie 3rd of Homestead	Second	5.00
Heifer Under 1 Year Old.			
McCormick & Edgerly, Pataskala, O.	Peggy Latch		
Same	Nellie Lisle		
L. V. Axtell, Perry, O.	Alice P. of Homestead	First	5.00
Same	Isbina of Homestead	Second	3.00
Same	Florence of Homestead		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD			
Graded Herd Owned by the Exhibitor.			
McCormick & Edgerly, Pataskala, O.			
L. V. Axtell, Perry, O.		First	$40.00
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
McCormick & Edgerly, Pataskala, O.			
L. V. Axtell, Perry, O.		First	$40.00
Four Animals the Get of One Sire.			
McCormick & Edgerly, Pataskala, O.			
L. V. Axtell, Perry, O.		First	30.00
Two Animals the Produce of One Cow.			
McCormick & Edgerly, Pataskala, O.			
L. V. Axtell, Perry, O.		First	10.00

Expert Judges, Henry Du Bois, Clayton C. Taylor.

AYRSHIRES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old and Over.			
Howard Cook, Beloit, O	Leroy Joe Joe	Second	$10.00
J. F. Converse & Co., Woodville, N. Y.	Riverside Duke		
J. P. Beatty, Pataskala, O.	Chic	First	20.00
Bull 2 Years Old and Under 3.			
Howard Cook, Beloit, O	Dick Ayer	First	20.00
J. F. Converse & Co., Woodville, N. Y.	Riverside Lad	Second	10.00
J. P. Beatty, Pataskala, O.	Mazzou		
Bull 1 Year Old and Under 2.			
Howard Cook, Beloit, O	Beloit Ayer	Second	5.00
J. F. Converse & Co., Woodville, N. Y.	Woodville Douglas		
Same	Nox Emall	First	10.00
J. P. Beatty, Pataskala, O.	Bedwill		
Bull Under 1 Year Old.			
Howard Cook, Beloit, O			
Same			
Same			
J. F. Converse & Co., Woodville, N. Y.	Golden Ossedine	First	5.00
Same	Lord Silver Dreams		
J. P. Beatty, Pataskala, O.	Stanton	Second	3.00
Cow 3 Years Old or Over.			
Howard Cook, Beloit, O			
Same			
J. F. Converse & Co., Woodville, N. Y.	Gladys Drummond	First	15.00
Same	Josie Ossedine		
J. P. Beatty, Pataskala, O.	Hassa III.	Second	10.00
Same	Kluck		
Cow or Heifer 2 Years Old and Under 3.			
Howard Cook, Beloit, O	Beauty	Second	5.00
Same			
J. F. Converse & Co., Woodville, N. Y.	Rose Telford		
Same	Lady Fern		
J. P. Beatty, Pataskala, O.	Mazeppa II.	First	10.00
Same	Dora A.		
Heifer 1 Year Old and Under 2.			
Howard Cook, Beloit, O	Belle Cherry	Second	5.00
Same			
Same			
J. F. Converse & Co., Woodville, N. Y.	Antonie 2nd	First	10.00
Same	Douglass Girl		
J. P. Beatty, Pataskala, O.	Creola		
Same	Hesturns		
Same	Grace M.		
Heifer Calf.			
Howard Cook, Beloit, O			
Same			
J. F. Converse & Co., Woodville. N. Y.	Isolia Douglass	First	5.00
Same	Clara Douglass	Second	3.00
J. P. Beatty, Pataskala, O.	Lenora II.		
Same	Victoria		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD			
Graded Herd Owned by the Exhibitor.			
Howard Cook, Beloit, O			
J. F. Converse & Co., Woodville, N. Y.		First	$40.00
J. P. Beatty, Pataskala, O.			
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
Howard Cook, Beloit, O			
J. F. Converse & Co., Woodville, N. Y.		First	40.00
J. P. Beatty, Pataskala, O.			
Four Animals the Get of One Sire.			
J. P. Beatty, Pataskala, O.			
Howard Cook, Beloit O.		First	30.00
J. F. Converse & Co., Woodville, N. Y.			
Two Animals the Produce of One Cow.			
Howard Cook, Beloit O.			
J. F. Converse & Co., Woodville, N. Y.		First	10.00
J. P. Beatty, Pataskala, O.			

Expert Judges, Henry Du Bois, Clayton C. Taylor.

HOLSTEINS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old or Over.			
F. G. Johnston & Co., Columbus, O.	Eunice Clay Sir Henry		
J. M. Quivey & Sons, Houstonville, Pa.	P. McKean	Second	$10.00
W. B. Smith & Son, Columbus, O.	Clothilde Netherland Pasha	First	20.00
Bull 2 Years Old and Under 3.			
W. B. Smith & Son, Columbus, O.	Sir Henry Yu No	First	20.00
Bull 1 Year Old and Under 2.			
F. G. Johnston & Co., Columbus, O.	Nattie Maids Paul De Kol		
J. M. Quivey & Sons, Houstonville, Pa.	Larry Barr	First	10.00
W. B. Smith & Son, Columbus, O.	Clyde Paul De Kol	Second	5.00
Same	Miss Sharp's Paul De Kol		
Same	Velma Ueva's Statesman.		
Bull Under 1 Year Old.			
F. G. Johnston & Co., Columbus, O.	Tests Count	Second	3.00
Same			
Same			
Same			
Same			
J. M. Quivey & Sons, Houstonville, Pa.	Prince McKean		
W. B. Smith & Son, Columbus, O.			
Same	Dan Leaffy	First	5.00

HOLSTEINS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Cow 3 Years Old or Over			
F. G. Johnston & Co., Columbus, O.	Gretta Thorne 3d.		
Same	Orrice 5th		
Same	Dingles Beauty		
Same	Anna Clothilde 4th		
J. M. Quivey & Sons, Houstonville, Pa.	Clifden Tritovia Smirk	Second	10.00
Same	Wixon Rose		
W. B. Smith & Son, Columbus, O.	Margolyn 2d.		
Same	Kate Spray	First	15.00
Cow or Heifer 2 Years Old and Under 3.			
F. G. Johnston & Co., Columbus, O.	Wilhelma De Kol		
J. M. Quivey & Sons, Houstonville, Pa.	Beauty Mayo		
W. B. Smith & Son, Columbus, O.	Never Again	First	10.00
Same	Orrice 5th Clothilde	Second	5.00
Heifer 1 Year Old and Under 2			
F. G. Johnston & Co., Columbus, O.	Lady Edith Alphia		
Same	Anna Madge		
J. M. Quivey & Sons, Houstonville, Pa.	Bright Light 2d		
W. B. Smith & Son, Columbus, O.	Kate Spray 2d.	Second	5.00
Same	Hollander Clothilde	First	10.00
Heifer Under 1 Year Old.			
F. G. Johnston & Co., Columbus, O.	Teranna 6th Lou Decol	First	5.00
Same			
Same			
J. M. Quivey & Sons, Houstonville, Pa.	Beauty In		
W. B. Smith & Son, Columbus, O.	Mary Helton 3d.		
Same	Aggie Beauty	Second	3.00

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by the Exhibitor.			
F. G. Johnston & Co., Columbus, O.			
J. M. Quivey & Sons, Houstonville, Pa.			
W. B. Smith & Son, Columbus, O.	Sir Henry Yu No	First	$40.00
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
W. B. Smith & Son, Columbus, O.	Clyde Paul De Kol	First	40.00
Four Animals the Get of One Sire.			
J. M. Quivey & Sons, Houstonville, Pa.			
W. B. Smith & Son, Columbus, O.		First	30.00
Two Animals the Produce of One Cow.			
F. G. Johnston & Co., Columbus, O.		First	10.00

Expert Judges, Henry Du Bois, Clayton C. Taylor.

ABERDEEN ANGUS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old and Over.			
Willis M. Sturges, Mansfield, O.	Trooper	Second....	$10.00
D. Bradfute & Son, Cedarville, O.	Gay Eric	First.....	15.00
Bull 2 Years Old and Under 3.			
H. C. Allen, Georgetown, Ky.	Valiant Knight	First......	15.00
Bull 1 Year Old and Under 2.			
Willis M. Sturges, Mansfield, O.	Sturges' Commissioner	Second....	5.00
D. Bradfute & Son, Cedarville, O.	Miles of Meadowbrook	First......	10.00
Bull Under 1 Year Old.			
Willis M. Sturges, Mansfield, O.	Midnight Trooper	Third......	3.00
Same	Midnight Joe	Second....	5.00
D. Bradfute & Son, Cedarville, O.	Brutus II. of Meadowbrook	First......	10.00
Cow 3 Years Old or Over.			
H. C. Allen, Georgetown, Ky.	Queen of Imo	....	....
Willis M. Sturges, Mansfield, O.	Queen Ida Midnight	Third......	5.00
Same	Queen S.	....	....
D. Bradfute & Son, Cedarville, O.	Lady of Meadowbrook	First......	15.00
Same	Vanity of Meadowbrook	Second....	10.00
Same	Frances of Meadowbrook	....	....
Cow or Heifer 2 Years Old and Under 3.			
H. C. Allen, Georgetown, Ky.	Jennet May 3rd	....	....
Willis M. Sturges, Mansfield O.	Queen Mary Bell 7th	Third......	5.00
Same	Queen Ida Midnight II.	....	....
D. Bradfute & Son, Cedarville, O.	Fanny of Meadowbrook	First......	15.00
Same	Violet of Meadowbrook	Second....	10.00
Same	Quality of Meadowbrook	....	....
Heifer 1 Year Old and Under 2.			
H. C. Allen, Georgetown, Ky.	Jennet's Favorite	Third......	3.00
Willis M. Sturges, Mansfield O.	Queen S. 4th	....	....
Same	Sturges' Queen Mary Bell 10th	....	....
D. Bradfute & Son, Cedarville, O.	Mabel of Meadowbrook	First......	10.00
Same	Bess II. of Meadowbrook	Second....	5.00
Same	Adaline of Meadowbrook.	....	....
Same	Lady II. of Meadowbrook	....	....
Heifer Under 1 Year Old.			
H. C. Allen, Georgetown, Ky.	Allenhurst Jennet	Third......	3.00
Same	Allenhurst Perfection	....	....
Willis M. Sturges, Mansfield, O.	Queen S. V.	Second....	....
Same	Queen Mary Bell 13	....	....
Same	Trooper's Queen	....	....
D. Bradfute & Son, Cedarville, O.	Marie II. of Meadowbrook	First......	10.00
Same	F. II. of Meadowbrook	....	....
Same	Beatrice of Meadowbrook	....	....

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by the Exhibitor.			
H. C. Allen, Georgetown, Ky.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.		First	$40.00
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.		First	40.00
Four Animals the Get of One Sire.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.		First	30.00
Two Animals the Produce of One Cow.			
H. C. Allen, Georgetown, Ky.			
Willis M. Sturges, Mansfield, O.			
Same			
D. Bradfute & Son, Cedarville, O.		First	10.00

Expert Judges, John Gosling, G. M. Roudebush.

RED POLLS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old or Over.			
Andrew Bros., Cedarville, O.	Gov. Bradley	First	$15.00
Bull 2 Years Old and Under 3.			
Andrew Bros., Cedarville, O.	Demon	First	15.00
Bull 1 Year Old and Under 2.			
Andrew Bros., Cedarville, O.	Henry	First	10.00
Bull Under 1 Year Old.			
Andrew Bros., Cedarville, O.		First	10.00
Cow 3 Years Old or Over.			
Andrew Bros., Cedarville, O.	Haughty III.	First	15.00
Same	Money	Second	10.00
Cow or Heifer 2 Years Old and Under 3.			
Andrew Bros., Cedarville, O.	Beauty	First	15.00
Same	Anna	Second	10.00
Heifer 1 Year Old and Under 2.			
Andrew Bros., Cedarville, O.	Red Rose	First	10.00
Same	Beauty of Cedarville II.	Second	5.00
Heifer Under 1 Year Old.			
Andrew Bros., Cedarville, O.	Dutch Maid	Second	5.00
Same	Money II	First	10.00

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by the Exhibitor.			
Andrew Bros., Cedarville, O.		First	$40.00
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
Andrew Bros., Cedarville, O.		First	40.00
Four Animals the Get of One Sire.			
Andrew Bros., Cedarville, O.		First	30.00
Two Animals the Produce of One Cow.			
Andrew Bros., Cedarville, O.		First	10.00

Expert Judge, G. M. Roudebush.

POLLED DURHAMS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 3 Years Old or Over.			
W. Tossey, Watkins, O.	Hamilton Roy	First	$15.00
L. E. Jones, Rob Roy, Ind.	Scarlet Chief		
Bull 2 Years Old andl Under 3.			
W. Tossey, Watkins, O.	Young Fairfax	First	15.00
Bull 1 Year Old and Under 2.			
W. W. Crane, Tippecanoe City, O.	Tippecanoe 32d	First	10.00
W. Tossey, Watkins, O.	Mill Creek Chief	Second	5.00
Bull Under 1 Year Old.			
W. W. Crane, Tippecanoe City, O.	Tippecanoe City 42d		
W. Tossey, Watkins, O.		First	10.00
L. E. Jones, Rob Roy, Ind.	Oakland		
Cow 3 Years Old and Over.			
W. Tossey, Watkins, O.	Allie	Second	10.00
Same	Daisy	First	15.00
L. E. Jones, Rob Roy, Ind.	Jennie		
Cow or Heifer 2 Years Old and Under 3.			
W. W. Crane, Tippecanoe City, O.	Roan Mary	First	15.00
Same	Duchess of Fairholmes	Third	5.00
W. Tossey, Watkins, O.	Violet	Second	10.00
L. E. Jones, Rob Roy, Ind.	Saphoa		
Heifer 1 Year Old and Under 2.			
W. W. Crane, Tippecanoe City, O.	Acacia Bonnie 2d		
Same	Polled Lady	First	10.00
W. Tossey, Watkins, O.	Superba	Second	5.00
Same	Lady Hamilton	Third	3.00
L. E. Jones, Rob Roy, Ind.	Lady Hamilton		
Same	Hope		

POLLED DURHAMS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Heifer Under 1 Year Old.			
W. W. Crane, Tippecanoe City, O.	Tenth Rose of Acacia	First	10.00
Same	Mattie of Acacia		
Same	Acacia Mary 6th	Third	3.00
W. Tossey, Watkins, O.	Mill Creek Pride	Second	5.00
Same			
L. E Jones, Rob Roy, Ind.	Louan Hamilton		
Same	Fae Hamilton		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
EXHIBITOR'S HERD.			
Graded Herd Owned by the Exhibitor.			
W. Tossey, Watkins, O.		First	$40.00
L. E. Jones, Rob Roy, Ind.			
BREEDER'S HERD.			
Young Herd Bred and Owned by the Exhibitor.			
W. W. Crane, Tippecanoe City, O.		First	40.00
W. Tossey, Watkins, O.			
L. E. Jones, Rob Roy, Ind.			
Four Animals the Get of One Sire.			
W. W. Crane, Tippecanoe City, O.			
W. Tossey, Watkins, O.		First	30.00
L. E. Jones, Rob Roy, Ind.			
Two Animals the Produce of One Cow.			
W. Tossey, Watkins, O.		First	10.00
L E. Jones, Rob Roy, Ind			

Expert Judges, John Gosling, G. M. Rondebush.

GRAND SWEEPSTAKES—DAIRY BREEDS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Herd of Bull and Four Cows or Heifers.			
Howard Cook, Beloit O.			
J F. Converse & Co., Woodville, N. Y.			
F. G. Johnston & Co., Columbus, O.			
Biltmore Farms, Baltimore, N. C.			
Same			
J. M. Quivey & Son, Houstonville, Pa.			
W. B. Smith & Son, Columbus, O.		First	Sil. Cup.
Brooks & Pidgeon, Salem, O.			
L. V. Axtell, Perry, O.			

GRAND SWEEPSTAKES, DAIRY BREEDS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Bull 2 Years Old or Over.			
Howard Cook, Beloit, O.			
J. F. Converse & Co., Woodville, N. Y.			
F. G. Johnston & Co., Columbus, O.			
McCormick & Edgerly, Pataskala, O.			
Biltmore Farms, Baltimore, N. C.	Golden Lad Successor	First	Medal.
Same			
J. M. Quivey & Son, Houstonville, Pa			
W. B. Smith & Son, Columbus, O.			
James R. Orr, Cedarville, O.			
L. V. Axtell, Perry, O.			
Bull Under 2 Years Old.			
Howard Cook, Beloit, O.			
J. F. Converse & Co., Woodville, N. Y.			
F. G. Johnston & Co., Columbus, O.			
McCormick & Edgerly, Pataskala, O.			
Biltmore Farms, Baltimore, N. C.	Golden Boy of Biltmore	First	Medal
Same			
W. B. Smith & Son, Columbus, O.			
James R. Orr, Cedarville, O.			
L. V. Axtell, Perry, O.			
Cow 2 Years Old or Over			
Howard Cook, Beloit, O			
J. F. Converse & Co., Woodville, N. Y.			
F. G. Johnston & Co., Columbus, O.			
Biltmore Farms, Baltimore, N. C.	Imp. Garland of Biltmore	First	Medal
Same			
J. M. Quivey & Son, Houstonville, Pa			
W. B. Smith & Son, Columbus, O.			
James R. Orr, Cedarville, O.			
L. V. Axtell, Perry, O.			
Female Under 2 Years Old.			
Howard Cook, Beloit, O.			
J. F. Converse & Co., Woodville, N. Y.	Antonia 2d	First	Medal
F. G. Johnston & Co., Columbus, O.			
Biltmore Farms, Baltimore, N. C.			
Same			
W. B. Smith & Son, Columbus, O.			
James R. Orr, Cedarville, O.			
L. V. Axtell, Perry, O.			

Expert Judges, Henry Du Bois, Clayton C. Taylor.

GRAND SWEEPSTAKES—BEEF BREEDS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Aged Herd.			
Aaron Barber, Avon, N. Y.			
E. S. Kelley, Yellow Springs, O.			
John Hooker, New London, O.			
C. Hintz & Sons, Fremont, O.			
W. M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.	Gay Eric	First	Sil. Cup.
Jos. Witter, College Corners, O.			

GRAND SWEEPSTAKES, BEEF BREEDS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Young Herd.			
Darling Bros., Nellie, O.			
W. W. Crane, Tippecanoe City, O.			
John Hooker, New London, O.			
Thos. A. Cotten & Sons, Manilla, Ind.			
C. Hintz & Sons, Fremont, O.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.	Miles of Meadowbrook	First	Sil. Cup.
C. F. Rice, Indianola, Ill.			
Douglass & Son, Sulphur Hill, Ind.			
Bull 2 Years Old or Over.			
Aaron Barber, Avon, N. Y.			
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.	Brave Archer		
Same	Viceroy of Anoka		
John Hooker, New London, O.	Mark Hanna	First	Medal
C. Hintz & Sons, Fremont, O.			
Willis M. Sturgess, Mansfield O.			
D. Bradfute & Son, Cedarville, O.	Gay Eric		
Jos. Witter, College Corners, O.			
Bull Under 2 Years Old			
Aaron Barber, Avon, N. Y.			
W. W. Crane, Tippecanoe City, O.			
John Hooker, New London, O.			
C. Hintz & Sons, Fremont, O.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.	Miles	First	Medal
C. F. Rice, Indianola, Ill.			
W. Tossey, Watkins, O.			
Douglass & Son, Sulphur Hill, Ind.			
Cow 2 Years Old or Over.			
Aaron Barber, Avon, N. Y.			
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.	Mildred 6th		
Same	Bapton Pearl	First	Medal
John Hooker, New London, O.			
W. Tossey, Watkins, O.			
C. Hintz & Sons, Fremont, O.			
W. M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.	Lady		
C. F. Rice, Indianola, Ill.			
Jos. Witter, College Corners, O.			
Female Under 2 Years Old.			
Aaron Barber, Avon, N. Y.			
Darling Bros., Nellie, O.			
E. S. Kelley, Yellow Springs, O.	Queen of the Lomans	First	Medal
Same	Nina's Choice		
W. W. Crane, Tippecanoe City, O.			
John Hooker, New London, O.			
Thos. A. Cotten & Son, Manilla, Ind			
U. S. McKay, Lumberton, O.	Lady Lavender		
C. Hintz & Sons, Fremont, O.			
Willis M. Sturges, Mansfield, O.			
D. Bradfute & Son, Cedarville, O.	Mabel		
C. F. Rice, Indianola, Ill.			
Jos. Witter, College Corners, O.			
W. Tossey, Watkins, O.			
Douglass & Son, Sulphur Hill, Ind.			
Same			

Expert Judge — John Gosling.

OHIO STATE DAIRY TEST, 1900.

By State Board of Agriculture and Ohio Agricultural
Experiment Station.

The season closing August 24, 1900, was the third year in which a class was provided for each of the dairy breeds. The above date also closed the eleventh year in which Ohio's Board of Agriculture has made provision for a test of individual animals in the several breeds of milch cows.

Apparently more interest has been manifested during the past year than during any previous one. Sixty-seven cows in all were entered. This is almost double the number entered in any one previous year. Of these sixty-seven, three were Red Polled, six were Jerseys, and fifty-eight were Holsteins.

In the earlier history of these tests a premium was given for the cow producing the largest amount of milk. Later this was changed to read "to the cow producing the largest amount of milk in twenty-four hours, analyzing at least three percent butter fat." Experience has shown that so far as Ohio State Dairy Test is concerned, it has been a foregone conclusion that it was in favor of the Holstein cows. This feature has been eliminated, and is believed by those directly interested that the rules as they stand today are as fair for one breed as for any other. They are based upon the two essential elements in milk, namely, butter fat and solids not fat.

A first and second premium are offered for the largest yield of fat, and a first and second premium for largest yield of solids not fat, for Jerseys, Guernseys, Ayrshires, Shorthorns, Red Polled, Holsteins or any other milk breed. This is broad enough to include anything that is even passable in any and all breeds, and should bring out some of the best individuals in all registered breeds.

There is also a championship class provided for the cow of any breed making the highest score with the following basis; For each pound of fat as determined by the Babcock test, or by chemical analysis, thirty points; for each pound of other solids, six points.

In addition to the above a grand sweepstakes class is provided for any herd of five cows tested at one time, belonging to one herd, and owned by one breeder, making the highest score based on the method of determining score as given below: Namely, for each pound of fat, as determined by chemical analysis, or the Babcock test, thirty points; for each pound of other solids, six points. The score of the herd shall be the aggregate of individual scores. Time in each case to be limited to twenty-four hours.

The following table gives all animals entered for 1900, the name, age, date last calf was born, date of test, total yield of milk, percent of butter fat, percent solids not fat, total percent solids, total pounds fat, total pounds solids not fat, and the score made by each:

OHIO STATE DAIRY TEST, 1900.

	Name of Cow	Breed	Age in Years	Last Calf Born	Date of Test	Percent Fat	Percent Solids, Not Fat	Total Solids	Pounds Milk	Pounds Butter, Fat	Pounds Solids, Not Fat	Points Scored
1	Viola Mercedes Clothilde	Holstein	4	Oct. 24, '99	Oct. 26, '99	3.3	7.52	10.82	52.0	1.71	3.91	74.9
1	Annual	"	7	Oct. 24, '99	Oct. 26, '99	3.5	8.14	11.65	55.5	1.94	4.52	85.4
1	Kate Spray	"	8	Aug. 10, '99	Oct. 26, '99	4.5	8.02	12.58	38.6	1.76	3.10	71.5
1	We Repeat	"	4	Oct. 8, 99	Oct. 26, '99	4.1	8.36	12.47	48.9	2.00	4.09	84.7
1	Calico Margaret	"	4	Sept. 15, '99	Oct. 26, '99	3.7	8.57	12.28	56.4	2.09	4.83	91.8
1	Peaches	"	4	Sept. 8, '99	Oct. 26, '99	4.2	8.77	13.04	44.6	1.90	3.92	80.7
2	Ethel of Dellhurst	"	2	July 12, '99	Nov. 22, '99	3.0	8.57	11.60	38.6	1.17	3.31	55.0
2	Miss Andire of Dellhurst	"	4	Oct. 15, '99	Nov. 25, '99	2.7	8.46	11.19	45.2	1.23	3.70	59.2
2	Calleen Bawn 4th	"	11	Oct. 6, '99	Nov. 25, '99	3.0	8.43	11.49	52.5	1.60	4.42	77.3
2	Sir Jewel Ononise Andire	"	6	Oct. 20, '99	Nov. 22, '99	2.7	7.77	10.53	68.8	1.90	5.35	89.1
1	Gum Tulu	"	8	Nov. 15, '99	Dec. 7, '99	3.7	8.98	12.74	59.0	2.22	5.29	98.3
1	Peterina 2d	"	12	Oct. 31, '99	Dec. 8, '99	3.3	8.04	11.37	53.6	1.79	4.31	79.6
1	Dulcina 2d	"	13	Oct. 29, '99	Dec. 7, '99	3.9	8.71	12.61	54.5	2.12	4.74	92.2
3	They No	"	8	Jun. 18, '99	Jan. 10, '00	3.9	8.71	12.68	35.7	1.41	3.11	61.2
3	Gem Mattie	"	4	Dec. 4, '99	Jan. 16, '00	3.8	8.90	12.71	38.9	1.48	3.46	61.2
3	Orice 5th	"	7	Dec. 14, '99	Jan. 16, '00	3.6	9.16	12.83	70.1	2.57	6.42	115.6
3	Dingles Beauty	"	3	May 20, '99	Jan. 16, '00	3.4	8.52	11.99	38.1	1.32	3.25	59.1
2	Ethel 2d Lady	"	9	Jan. 6, '00	Jan. 29, '00	3.7	8.75	12.52	49.5	1.86	4.33	81.9
2	Ercilla of Netherland	"	3	Nov. 21, '99	Jan. 29, '00	2.7	8.83	11.63	42.5	1.18	3.75	58.1
2	Hogeva of Dellhurst	"	4	Nov. 21, '99	Jan. 30, '00	3.1	8.56	11.73	45.4	1.44	3.88	66.5
2	Rhosle of Dellhurst	"	7	Dec. 28, '99	Jan. 30, '00	3.1	7.85	11.01	67.7	2.13	5.32	96.0
2	Kalsona Hase	"	5	Jan. 7, '00	Jan. 29, '00	3.6	8.12	11.76	52.3	1.90	4.25	82.6
1	Matallas Mercedes	"	9	Jan. 5, '00	Feb. 5, '00	3.1	9.03	12.17	59.6	1.87	5.39	88.7
1	Fisher Mercedes	"	7	Jan. 5, '00	Feb. 8, '00	3.8	8.74	12.58	52.5	2.02	4.59	88.1
1	Nieta 2d	"	7	Jan. 17, '00	Feb. 8, '00	3.5	8.20	11.70	55.5	1.94	4.55	82.7
1	Margolyn	"	12	Jan. 7, '00	Feb. 8, '00	3.1	8.50	11.60	62.7	1.94	5.33	90.3
3	Margaret Hollander	"	7	Jan 25, '00	Feb. 15, '00	3.3	8.76	12.11	61.4	2.00	5.38	92.5
3	Carenes 4th Colanthus Parkhena	"	8	Sept 16, '99	Feb. 16, '00	4.0	9.16	13.22	29.0	1.17	2.66	51.31
3	Tirania 4ths Parthena	"	4	Jan. 10, '00	Feb. 16, '00	3.6	8.71	12.28	46.0	1.66	3.98	73.9
2	Maggie Schuiling	"	4	Jan. 21, '00	Feb. 24, '00	2.9	8.37	11.34	50.6	1.50	4.24	70.5
2	Madame Blaze	"	8	Jan. 22, '00	Feb. 23, '00	3.3	8.21	11.58	55.3	1.86	4.54	81.7
2	Margaret Lyons	"	4	Jan. 16, '00	Feb. 23,'00	3.4	8.79	12.21	56.1	1.91	4.93	87.0
2	Barbara Hick	"	3	Jan. 22, '00	Feb. 23, '00	3.2	8.92	12.29	41.6	1.37	3.71	63.5
2	Kalsora Pledge DeKol		4	Jan. 20, '00	Feb. 23, '00	3.4	8.89	12.29	55.6	1.89	4.95	86.4

OHIO STATE DAIRY TEST, 1900 — Continued.

	Name of Cow	Breed	Age in Years	Last Calf Born	Date of Test	Percent Fat	Percent Solids, Not Fat	Total Solids	Pounds Milk	Pounds Butter, Fat	Pounds Solids, Not Fat	Points Scored
2	Quaker Maid	Holstein	6	Feb. 1, '00	Feb. 23, '00	3.4	8.97	12.42	67.6	2.32	6.07	106.2
1	Pana	"	8	Mch.20, '00	Apr. 2, '00	2.8	7.88	10.75	66.8	1.91	5.26	88.9
1	Princess Penrosa	"	12	Mch.14, '00	Apr. 2, '00	3.2	8.32	11.56	65.8	2.12	5.47	96.7
1	Nancy Dew Drop's 2d Aggie	"	5	Mch.13, '00	Apr. 2, '00	3.4	7.77	11.18	53.6	1.82	4.16	79.7
1	Como's Aggie Beauty	"	6	Mch.14, '00	Apr. 2, '00	3.5	8.55	12.06	62.2	2.18	5.31	97.3
1	Aggie Maximo	"	4	Mch.14, '00	Apr. 2, '00	3.3	8.66	12.06	62.2	2.11	5.38	95.7
1	Yu No	"	7	Mch.23, '00	Apr. 2, '00	4.2	8.73	12.97	57.5	2.43	5.02	103.1
1	Tester	"	5	Mch.28, '00	Apr. 2, '00	4.2	8.84	13.89	51.3	2.17	4.53	92.5
3	Paula Kola	"	2	Mch.16, '00	Apr. 23, '00	3.0	8.34	11.23	35.1	1.06	2.87	49.0
3	Annie Valentine	"	2	Apr. 1, '00	Apr. 23, '00	3.0	8.39	11.43	30.8	0.93	2.58	43.9
3	Annie Pearl	"	4	Mch.25, '00	Apr. 24, '00	3.2	8.84	12.06	48.9	1.57	4.32	73.1
3	Annie Docla	"	8	Mch.13, '00	Apr. 24, '00	3.1	9.35	12.47	62.5	1.94	5.84	91.4
2	Frances Ononis Jewell De Kol	"	2	Apr. 3, '00	May 4, '00	3.4	8.32	11.75	32.2	1.10	2.68	49.1
2	Impatience Beauty	"	4	Apr. 3, '00	May 4, '00	3.5	8.30	11.81	49.0	1.71	4.06	75.9
2	Hilda Nethersole	"	2	Mch.12, '00	May 4, '00	3.2	8.98	12.19	45.3	1.45	4.06	68.0
1	Payne's Lady Devries of Rochester	"	8	Apr. 21, '00	May 13, '00	2.8	8.22	11.06	80.0	2.26	6.58	107.4
3	Wilhelmina Dekol	"	2	May 19, '00	Jun. 18, '00	2.7	8.71	11.48	41.4	1.14	3.60	56.0
3	Arydelothe Aggie	"	7	Apr. 3, '00	Jun. 18, '00	3.1	8.99	12.11	44.8	1.39	4.03	66.0
2	Dekol Andire of Dellhurst	"	3	Apr. 24, '00	Jun. 16, '00	2.6	7.90	10.54	38.7	1.01	3.06	48.9
2	Schulingof Spring Grove	"	5	May 19, '00	Jun. 15, '00	3.1	7.70	10.88	63.9	2.02	4.92	90.3
2	DeKol Aranza	"	4	May 25, '00	Jun. 15, '00	2.6	8.43	11.10	51.7	1.37	4.35	67.5
2	Artis Roloras Clothilde	"	4	May 18, '00	Jun. 16, '00	3.0	7.94	11.04	56.0	1.73	4.45	78.6
4	Charmer 2d	Red Polled	6	May 8, '00	Jun. 9, '00	4.1	9.13	13.29	38.1	1.58	3.47	68.3
4	May Flower 2d	"	8	Jan. 18, '00	Jun. 9, '00	4.0	9.70	13.79	39.7	1.62	3.85	71.8
4	Popy's 3d	"	6	May 10, '00	Jun. 9, '00	3.6	8.85	12.50	57.6	2.09	5.10	93.5
1	Popular	Holstein	5	Jun. 3, '00	July 1, '00	2.8	8.23	11.13	62.4	1.80	5.13	85.0
1	Kate Spray's 2d	"	2	July 28, '00	Aug. 12, '00	3.6	9.05	12.72	29.9	1.09	2.71	49.1
5	Miss Blanch C	Jersey	6	Aug.—, '00	Aug. 23, '00	4.7	9.47	14.17	26.0	1.22	2.46	51.4
5	Zulas of Maple Ridge	"	6	July 17, '00	Aug. 23, '00	4.6	9.53	14.13	35.7	1.64	3.40	69.6
5	Andalusia Signal Lady	"	6	July 20, '00	Aug. 23, '00	4.0	9.59	13.59	34.8	1.39	3.33	61.7
5	Rufus Acacia	"	6	Jun. 20, '00	Aug. 23, '00	3.7	9.52	13.22	36.6	1.35	3.48	61.5
5	Amelia S. King	"	6	July 29, '00	Aug. 23, '00	4.7	9.61	14.31	34.5	1.62	3.31	68.5
5	Amelia S. King 2d	"	3	July 30, '00	Aug. 23, '00	4.7	9.49	14.19	26.5	1.24	2.51	52.4

The rule regarding entries and prizes states explicitly that "No awards will be made to any owner whose cow is not present during the fair, unless, in the meantime, the cow has died, or contracted some contagious disease, in which case such fact must be clearly set forth in the form of an affidavit." No such affidavits having come into the hands of those authorized to receive them, awards could not be made to animals not present, except in the case of the Jerseys, where an unavoidable accident resulted in the killing of some of the cows on the way to the fair grounds.

For the largest yield of fat from twenty-four hours milk, the following prizes were awarded to Holsteins. Orice 5th, with a yield of 2.57 pounds butter fat: owned by F. G. Johnston & Co., Columbus, Ohio, a silver cup.

Second prize, a silver medal to the cow Yu No, with a yield of 2.31 pounds: owned by W. B. Smith & Son, Columbus, Ohio.

First prize for largest yield of solids not fat, a silver cup, to "Payne's Lady Devries, of Rochester," with a product of 6.58 pounds: owned by W. B. Smith & Son, Columbus, Ohio.

Second prize, a silver medal, to Orice 5th, with a product of 6.42 pounds: owned by F. G. Johnston & Co., Columbus, Ohio.

To the Jersey class for the largest yield of butter fat, first premium, a silver cup, to the cow Zula, of Maple Ridge, with 1.64 pounds.

Second prize, [illegible] silver medal, to Amelia S. King, with a yield of 1.62 pounds butter fat.

For the largest yield of solids not fat, first premium, a silver cup, to the cow Rufus Acacia, with a yield of 3.48 pounds.

Second prize, a silver medal, to the cow Zula, of Maple Ridge, with a yield of 3.40 pounds.

All the above Jerseys owned by Brooks & Pidgeon, of Salem, Ohio.

Championship cup for cow of any breed, making the highest score on basis given above, was awarded to Orice 5th, with a score of 115.68 points. This Holstein cow was owned by F. G. Johnston & Co., Columbus, Ohio.

The Grand Sweepstakes' Plate for herd of five cows, making the highest aggregate score, was won by W. B. Smith & Son, of Columbus, Ohio, with the following cows:

Princess Penrosa,	making	a	score of	96.73
Comos Aggie Beauty	"	"	"	97.38
Aggie Maximo	"	"	"	95.73
Yu No	"	"	"	103.17
Tester	"	"	"	92.56
				485.57

This gives an average score of 97.11 points. The aggregate butter yield of these five cows amounts to a fraction over eleven pounds, making an average of two and one-fifth pounds for each cow. This is a remarkable herd test. No other herd of five entered made an average of two pounds per day.

EXPLANATORY.—All the cows marked 1, 2, or 3, in the table, are Holsteins. Those marked 4 are Red Polled and those marked 5 are Jerseys.

Those marked 1 are owned by W. B. Smith & Son, Columbus, Ohio. Those marked 2 are from the herd of H. B. Van Cleve, Mentor, Ohio. Those marked 3 are owned by F. G. Johnston & Co., Columbus, Ohio.

The Red Polled cows were from the herd of V. T. Hills, Delaware, Ohio, and the Jerseys from the herd of Brooks & Pidgeon, of Salem, Ohio.

J. FREMONT HICKMAN, *Tester*.

Ohio Experiment Station.

SHEEP—G. Liggett, Member in Charge.

MERINOS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
S. Blamer & Son, Johnstown, O.			
John Vogel, Jr., Chicago, O.			
Same			
J. Lovett & Sons, Quincy, O.	McKinley No. 3		
C H. Bell, Ashley, O.		Second	5.00
Same			
R. D. Williamson, Xenia, O.		Third	2.00
Same			
J. M. Flanagan & Son, Niles, O.		First	10.00
Thos. Taylor, Waynesville, Ill.			
Ram 1 Year Old and Under 2.			
S. Blamer & Son, Johnstown, O.		Second	5.00
Same			
F. W. Perkins, West Mansfield, O.			
John Vogel, Jr., Chicago, O.			
J. Lovett & Sons, Quincy, O.	Klondike No. 32		
C. H. Bell, Ashley, O.		First	5.00
Same		Third	2.00
Same			
R. D. Williamson, Xenia, O.			
Same			
Same			
J. M. Flanagan & Son, Niles, O.			
Same			
Thos. Taylor, Waynesville, Ill.			
Ram Under 1 Year.			
S. Blamer & Son, Johnstown, O.			
John Vogel, Jr., Chicago, O.			
C. H. Bell, Ashley, O.		First	5.00
Same		Second	3.00
Same			
R. D. Williamson, Xenia, O.		Third	2.00
J. M. Flanagan & Son, Niles, O.			
Thos. Taylor, Waynesville, Ill			
Ewe 2 Years Old or Over.			
S. Blamer & Son, Johnstown, O.		Third	2.00
Same			
F. W. Perkins, West Mansfield, O.		Second	5.00
Same			
John Vogel, Jr., Chicago, O.			
Same			
C. H. Bell, Ashley, O.			
R. D. Williamson, Xenia, O.		First	10.00
Same			
Same			
Same			
J. M. Flanagan & Son, Ni[illegible] O.			
Thos. Taylor, Waynesvill[illegible]			
Same			
Ewe 1 Year Old and Under 2.			
S. Blamer & Son, Johnstown, O.			
F. W. Perkins, West Mansfield, O.			
John Vogel, Jr., Chicago, O.			
C. H. Bell, Ashley, O.		First	10.00
Same			
R. D. Williamson, Xenia O.		Second	5.00
Same			
J. M. Flanagan & Son, Niles, O.		Third	2.00
Thos. Taylor, Waynesville, Ill.			

MERINOS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ewe Under 1 Year.			
S. Blamer & Son, Johnstown, O.		Third	2.00
F. W. Perkins, West Mansfield, O.			
Same			
John Vogel, Jr., Chicago, O.			
C. H. Bell, Ashley, O.		Second	3.00
Same			
R. D. Williamson, Xenia, O.		First	5.00
Same			
J. M. Flanagan & Son, Niles, O.			
Thos. Taylor, Waynesville, Ill.			
Flock.			
S. Blamer & Son, Johnstown, O.			
F. W. Perkins, West Mansfield, O.			
C. H. Bell, Ashley, O.		First	10.00
R. D. Williamson, Xenia, O.			
J. M. Flanagan & Son, Niles, O.			
Thos. Taylor, Waynesville, Ill.			
Pen of 4 Lambs.			
S. Blamer & Son, Johnstown, O.			
C. H. Bell, Ashley, O.		First	10.00
R. D. Williamson, Xenia, O.			
J. M. Flannagan & Son, Niles, O.			

Expert Judge, Geo. A. Thomas, Greenwich, O.

DELAINE MERINOS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
S. Blamer & Son, Johnstown, O.		First	10.00
C. S. Chapman & Son, Marysville, O.	Keystone No. 90		
Fred Gosch, Chicago, O.			
Same			
A. Crittenden, Nova, O.	Oregon	Second	5.00
C. H. Williams, Church, Mich			
R. D. Williamson, Xenia, O			
C. H. Bell, Ashley, O.			
A. Crittenden, Nova, O.		Third	2.00
Ram 1 Year Old and Under 2.			
S. Blamer & Son, Johnstown, O.			
C. S. Chapman & Son, Marysville, O.		First	10.00
Same			
G. E. Helser, Herring, O.		Third	2.00
Fred Gosch, Chicago, O.			
A. Crittenden, Nova, O.			
C. H. Williams, Church, Mich		Second	5.00
C. L. Freed, Lancaster, O.	Buckeye Boy No. 121		
R. D. Williamson, Xenia, O.			
G. E. Helser, Herring, O.			
J. M. Flanagan & Son, Niles, O.			
A. Crittenden, Nova, O.			

DELAINE MERINOS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram Under 1 Year.			
S. Blamer & Son, Johnstown, O.			
C. S. Chapman & Son, Marysville, O.			
Same			
Same			
G. E. Helser, Herring, O.		First	5.00
Same		Second	3.00
Fred Gosch, Chicago, O.			
A. Crittenden, Nova, O.		Third	2.00
C. H. Williams, Church, Mich.			
R. D. Williamson, Xenia, O.			
C. H. Bell, Ashley, O.			
Same			
J. M. Flanagan & Son, Niles, O.			
Ewe 2 Years Old or Over.			
S. Blamer & Son, Johnstown, O.		First	10.00
Same			
C. S. Chapman & Son, Marysville, O.		Second	5.00
G. E. Helser, Herring, O.			
Fred Gosch, Chicago, O.			
Same			
A. Crittenden, Nova, O.		Third	2.00
C. H. Williams, Church, Mich.			
Same			
R. D. Williamson, Xenia, O.			
Thos. Taylor, Waynesville, Ill.			
A. Crittenden, Nova, O.			
Ewe 1 Year Old and Under 2.			
S. Blamer & Son, Johnstown, O.			
F. W. Perkins, West Mansfield, O.			
C. S. Chapman & Son, Marysville, O.		First	10.00
Same		Second	5.00
Same		Third	2.00
G. E. Helser, Herring, O.			
Fred Gosch, Chicago, O.			
A. Crittenden, Nova, O.			
C. H. Williams, Church, Mich.			
R. D. Williamson, Xenia, O.			
Same			
G. E. Helser, Herring, O.			
J. M. Flanagan & Son, Niles, O.			
Ewe Under 1 Year.			
S. Blamer & Son, Johnstown, O.		Second	3.00
Same			
C. S. Chapman & Son, Marysville, O.		Third	2.00
Same			
John J. Krass, Fremont, O.			
G. E. Helser, Herring, O.		First	5.00
Same			
Fred Gosch, Chicago, O.			
A. Crittenden, Nova, O.			
C. H. Williams, Church, Mich.			
R. D. Williamson, Xenia, O.			
Same			
Flock.			
C. S. Chapman & Son, Marysville, O.		First	10.00
G. E. Helser, Herring, O.			
A. Crittenden, Nova, O.			
C. H. Williams, Church, Mich.			
R. D. Williamson, Xenia, O.			
Pen of 4 Lambs.			
C. S. Chapman & Son, Marysville, O.			
G. E. Helser, Herring, O.		First	10.00
A. Crittenden, Nova, O.			
C. H. Williams, Church, Mich.			
R. D. Williamson, Xenia, O.			

Expert Judge, U. C. Brouse, Kendallville, Ind.

FRENCH MERINOS—RAMBOUILLET.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
Lincoln Brothers, Milford, Center, O.		First	10.00
Max Chapman, New California, O.	Don Carlos	Third	2.00
Shaw & Bader, Marits, O.		Second	5.00
Ram 1 Year Old and Under 2.			
Lincoln Bros., Milford Center, O.		Second	5.00
Same			
Max Chapman, New California, O.	Fashion	First	10.00
Shaw & Bader, Marits, O.		Third	2.00
Same			
Same			
Same			
Ram Under One Year.			
Lincoln Bros., Milford Center, O.		Third	2.00
Same			
Max Chapman, New California, O.		First	5.00
Same			
Same			
Shaw & Bader, Marits, O.		Second	3.00
Same			
Ewe 2 Years Old or Over.			
Lincoln Bros., Milford Center, O.		First	10.00
Same		Second	5.00
Max Chapman, New California, O.	Gold Fleece	Third	2.00
Shaw & Bader, Marits, O.			
Same			
Ewe 1 Year Old and Under 2.			
Max Chapman, New California, O.		First	10.00
Same		Third	2.00
Same			
Shaw & Bader, Marits, O.		Second	5.00
Same			
Ewe Under 1 Year.			
Lincoln Bros., Milford Center, O.		Second	3.00
Same			
Max Chapman, New California, O.	Peachie	First	5.00
Shaw & Bader, Marits, O.		Third	2.00
Flock.			
Lincoln Bros., Milford Center, O.		First	10.00
Shaw & Bader, Marits, O.			
Pen of 4 Lambs.			
Max Chapman, New California, O.		First	10.00
Shaw & Bader, Marits, O.			

Expert Judge, U. C. Brouse, Kendallville, Ind.

COTSWOLDS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
Wm. Hintz, Fremont, O.	R. P. Snell, 1,760	Third	2.00
Same	Samson 17,667		
John Andregg, Basil, O.	Garbutts 309		
Wilson Bros., Muncie, Ind.		First	10.00
D. B. Watt & Son., Xenia, O.		Second	5.00
Ram 1 Year Old and Under 2.			
Wm. Hintz, Fremont, O.	Rawlings 18,847	Second	5.00
Same	Rawlings 20,087		
John Andregg, Basil, O.	Longmaids	Third	2.00
Same			
Wilson Bros., Muncie, Ind.		First	10.00
D. B. Watt & Son., Xenia, O.			
Same			
Ram Under 1 Year.			
Wm. Hintz, Fremont, O.		First	5.00
Same		Second	3.00
John Andregg, Basil, O.			
J. Hal Woodford, Muncie, Ind.			
Wilson Bros., Muncie, Ind.			
D. B. Watt & Son., Xenia, O.		Third	2.00
Ewe 2 Years Old or Over.			
Wm. Hintz, Fremont, O.	Gold Medal 14,890		
Same	Fanny L. 17,657		
John Andregg, Basil, O.	Maid of Honor 18,527		
Wilson Bros., Muncie, Ind.		First	10.00
D. B. Watt & Son, Xenia, O.		Second	5.00
Same		Third	2.00
Ewe 1 Year Old and Under 2.			
Wm. Hintz, Fremont, O.	20,093	First	10.00
Same	20,096		
John Andregg, Basil, O.			
Same			
Wilson Bros., Muncie, Ind.		Second	5.00
D. B. Watt & Son, Xenia, O.		Third	2.00
Same			
Ewe Under 1 Year.			
Wm. Hintz, Fremont, O.	94	Second	3.00
Same	98		
John Andregg, Basil, O.			
J. Hal Woodford, Muncie, Ind.		First	5.00
Same		Third	2.00
Wilson Bros., Muncie, Ind.			
D. B. Watt & Son, Xenia, O.			
Flock.			
Wm. Hintz, Fremont, O.		First	10.00
D. B. Watt & Son, Xenia, O.			
Pen of 4 Lambs.			
Wm. Hintz, Fremont, O.		First	10.00
J. Hal Woodford, Muncie, Ind.			
D. B. Watt & Son, Xenia, O.			

Uriah Privett, Greensburg, Ind., Expert Judge.

Special Offer by American Cotswold Co.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Flock.			
Wm. Hintz, Fremont, O.			
Wilson Bros., Muncie, Ind.		First	10.00
D. B. Watt & Son, Xenia, O.			
Pen of 4 Lambs.			
Wm. Hintz. Fremont, O.		First	10.00
J. Hal Woodford, Muncie, Ind			
D. B. Watt & Son, Xenia, O.			

Uriah Privett, Greensburg, Ind., Expert Judge.

OXFORD DOWNS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
John Andregg, Basil, O.	Beldon's Monarch		
A. Bordwell & Son., Fargo, N. Y.	Bordwell's Climax 17,830	First	10.00
G. W. Heskett, Jr., Fulton, O.	Brant Chief 54		
J. C. Williamson, Xenia, O.		Second	5.00
Same		Third	2.00
Ram 1 Year Old and Under 2.			
John Andregg, Basil, O.	Lord Bath		
A. Bordwell & Son., Fargo, N. Y.	Bordwell's 670 20,398	First	10.00
Same	Bordwell's 699 20,410	Second	5.00
G. W. Heskett, Jr., Fulton, O.	Brant Chief 153		
Same	Brant Chief 204		
J. C. Williamson, Xenia, O.		Third	2.00
Same			
Ram Under 1 Year.			
John Andregg, Basil, O.			
A. Bordwell & Son., Fargo, N. Y.	Bordwell's 709 21,040	Third	2.00
Same	Bordwell's 722 21,041		
G. W. Heskett, Jr., Fulton, O.	Brant Chief 256	Second	3.00
J. C. Williamson, Xenia, O.		First	5.00
Same			
Ewe 2 Years Old or Over.			
John Andregg, Basil, O.			
A. Bordwell & Son, Fargo, N. Y.	Monroe Ione 21,042	Second	5.00
Same	Bordwell's Anna 17,428		
G. W. Heskett, Fulton, O.	Syhan Lady 22	Third	2.00
J. C. Williamson, Xenia, O.		First	10.00
Same			
Ewe 1 Year Old and Under 2.			
John Andregg, Basil, O.			
Same			
A. Bordwell & Son, Fargo, N. Y.	Ilka 3rd 18,487	Second	5.00
Same	Donna Addie 2d 18,486		
G. W. Heskett, Jr., Fulton, O.	Brant Queen 186	First	10.00
J. C. Williamson, Xenia, O.		Third	2.00
Same			

OXFORD DOWNS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ewe Under 1 Year.			
John Andregg, Basil, O.		Third	2.00
Same			
A. Bordwell & Son, Fargo, N. Y.	Bordwell's 710 21,043	First	5.00
Same	Bordwell's 712 21,044	Second	3.00
G. W. Heskett, Jr., Fulton, O.	Highland Queen 30		
J. C. Williamson, Xenia, O.			
Same			
Flock.			
John Andregg, Basil, O.			
A. Bordwell & Son, Fargo, N. Y.		First	10.00
G. W. Heskett, Jr., Fulton, O.			
J. C. Williamson, Xenia, O.			
Pen of 4 Lambs.			
John Andregg, Basil, O.			
A. Bordwell & Son, Fargo, N. Y.		First	10.00
J. C. Williamson, Xenia, O.			

Uriah Privett, Greensburg, Ind. Expert Judge.

Special Offer by the American Oxford Down Record Association.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Yearling Ram.			
J C. Williamson, Xenia, O.		First	10.00
Same			
Yearling Ewe.			
John Andregg, Basil, O.		First	10.00
Same			
J. C. Williamson, Xenia, O.			
Pen of 4 Lambs.			
John Andregg, Basil, O.			
J. C. Williamson, Xenia, O.		First	10.00

Uriah Privett, Greensburg, Ind., Expert Judge.

SHROPSHIRE DOWNS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
H. W. Chaffee, Brecksville, O.			
John J. Krass, Fremont, O.			
H. K. Kent, Chagrin Falls, O.	Saxon King 1,350		
Brown Bros., Scottsville, N. Y.	Mainspring 116,705	Second	5.00
Same	O-At-Kas 104 127,191		
S. A. Hanna, Unionville, O.	Millers 113,118		
J. C. Price, Harrisburg, O.	Buckeye		
Folly Farm, Abington, Pa.		First	10.00
Altamont Stock Farm, Millbrook, N. Y.		Third	2.00
Same			
Same			
C. L. Freed, Lancaster, O.	Dewey 106		
C. W. O'Harra, Galloway, O.	Kent's 59		
Ram 1 Year Old and Under 2.			
H. W. Chaffee, Brecksville, O.			
Same			
John J. Krass, Fremont, O.			
H. K. Kent, Chagrin Falls, O.	Kent's 83		
Brown Bros., Scottsville, N. Y.	Harding's 30 145,771	Second	5.00
Same	Allen's 1086 128,903	Third	2.00
S. A. Hanna, Unionville, O.	Royal Standard		
J. C. Price, Harrisburg, O.	Gold Dust		
Folly Farm. Abington, Pa.			
Same			
Altamont Stock Farm, Millbrook, N. Y.		First	10.00
Same			
Same			
Same			
Ram Under 1 Year.			
H. W. Chaffee, Brecksville, O.		Third	2.00
Same			
Same			
John J. Krass, Fremont, O.			
H. K. Kent, Chagrin Falls, O.			
Same			
Brown Bros., Scottsville, N. Y.		First	5.00
Same			
Same			
S. A. Hanna, Unionville, O.	Royal Cup		
J. C. Price, Harrisburg. O.	Gold Bug		
Folly Farm, Abington, Pa.			
Same			
Altamont Stock Farm, Millbrook, N. Y.		Second	3.00
Same			
Same			
C. W. O'Harra, Galloway, O.			
Ewe 2 Years Old or Over.			
H. W. Chaffee, Brecksville, O.			
Same			
John J. Krass, Fremont, O.			
Brown Bros., Scottsville, N. Y.	Brown's 113 140,313	Second	5.00
J. C. Price. Harrisburg, O.	Kints 58		
Same	All Wool 137		
Folly Farm. Abington, Pa.	Miller's 169 128,467		
Altamont Stock Farm, Millbrook, N. Y.		First	10.00
Same		Third	2.00
Same			
C. W. O'Harra, Galloway, O.	O'Harra's 41 35,216		
Same	O'Harra's 13 94,477		

SHROPSHIRE DOWNS—Concluded

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ewe 1 Year Old and Under 2.			
H. W. Chaffee, Brecksville, O.			
Same			
John J. Krass, Fremont, O.			
H. K. Kent, Chagrin Falls, O.	Kent's 73		
Brown Bros., Scottsville, N. Y.	Brown's 125 140,327	Third	2.00
Same	Brown's 117 140,320		
Same	Allen's 1115 137,488		
S. A. Hanna, Unionville, O.	133,560		
J. C. Price, Harrisburg, O.	Bell 26		
Folly Farm, Abington, Pa.			
Same			
Altamont Stock Farm, Millbrook, N. Y.		First	10.00
Same			
Same		Second	5.00
Ewe Under 1 Year.			
H. W. Chaffee, Brecksville, O.			
Same			
John J. Krass, Fremont, O.			
H. K. Kent, Chagrin Falls, O.			
Brown Bros., Scottsville, N. Y.		First	5.00
Same		Third	2.00
S. A. Hanna, Unionville, O.	Hanna's		
J. C. Price, Harrisburg, O.			
Same			
Same			
Folly Farm, Abington, Pa.			
Same			
Altamont Stock Farm, Millbrook, N. Y.		Second	3.00
Same			
Same			
Flock.			
H. W. Chaffee, Brecksville, O.			
John J. Krass, Fremont, O.			
Brown Bros., Scottsville, N. Y.		First	10.00
Altamont Stock Farm, Millbrook, N. Y.			
Pen of 4 Lambs.			
H. W. Chaffee, Brecksville, O.			
John J. Krass, Fremont, O.			
Brown Bros., Scottsville, N. Y.		First	10.00
S. A. Hanna, Unionville, O.			
J. C. Price, Harrisburg, O.			
Folly Farm, Abington, Pa.			
Altamont Stock Farm, Millbrook, N. Y.			

Uriah Privett, Greensburg, Ind., Expert Judge.

HAMPSHIRE DOWNS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
W. S. Arts, Osborn, O.		Third	2.00
Scarff & Artz, New Carlisle, O.		First	10.00
Same		Second	5.00
Ram 1 Year Old and Under 2.			
W. S. Artz, Osborn, O.		Second	5.00
Scarff & Artz, New Carlisle, O.		First	10.00
Same		Third	2.00
Ram Under 1 Year.			
W. S. Artz, Osborn, O.		Third	2.00
Scarff & Artz, New Carlisle, O.		First	5.00
Same		Second	3.00
Ewe 2 Years Old or Over.			
W. S. Artz, Osborn, O.		Third	2.00
Scarff & Artz, New Carlisle, O.		First	10.00
Same		Second	5.00
Ewe 1 Year Old and Under 2.			
W. S. Artz, Osborn, O.		Third	2.00
Scarff & Artz, New Carlisle, O.		First	10.00
Same		Second	5.00
Ewe Under 1 Year.			
W. S. Artz, Osborn, O.		Second	3.00
Scarff & Artz, New Carlisle, O.		First	5.00
Same		Third	2.00
Flock.			
Scarff & Artz, New Carlisle, O.		First	10.00
Pen of 4 Lambs.			
Scarff & Artz, New Carlisle, O.		First	10.00

Special Offer by the Hampshire Downs Sheep Breeders' Association of America.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Pen of 4 Lambs.			
W. S. Artz, Osborn, O.		Second	15.00
Scarff & Artz, New Carlisle, O.		First	25.00

Uriah Privett, Greensburg, Ind., Expert Judge.

SOUTH DOWNS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
A. Bordwell & Son, Fargo, N. Y.	Drummond 187 12,754		
G. A. Drummond, Beaconsfield, Canada.	St. Andrew 12,589	First	10.00
Same	Drummond 179 12,926		
Same	Drummond 184 12,928		
W. U. Noble, Brecksville, O.		Second	5.00
A. H. Compton, Monroe, O.		Third	2.00
C. C. Shaw & Son, Newark, O.	Chichester King 13 11,457		
Charles J. Stuckey, Mechanicsburg, O.	Chichester King 11,150		
R. C. Watt, Cedarville, O.			
Same			
Ram 1 Year Old and Under 2.			
A. Bordwell & Son, Fargo, N. Y.	Simonton 31 12,879	Second	5.00
G. A. Drummond, Beaconsfield, Canada.	B. Union Jack		
Same	Sandringham 3,504		
W. U. Noble, Brecksville, O.			
Same			
A. H. Compton, Monroe, O.		Third	2.00
Same			
C. C. Shaw & Son Newark, O.	Simonton 24 12,218	First	10.00
Same			
R. C. Watt, Cedarville, O.			
Same			
Ram Under 1 Year.			
A Bordwell & Son, Fargo, N. Y.	Bordwell's 801 13,776		
G. A. Drummond, Beaconsfield, Canada.	Drummond 303 13,773	First	5.00
Same	Drummond 304 13,724		
Same	Drummond 327 13,728		
W. U. Noble, Brecksville, O.		Second	3.00
Same		Third	2.00
Same			
Same			
A. H. Compton, Monroe, O.			
Same			
C. C. Shaw & Son, Newark, O.			
Chas. J. Stuckey, Mechanicsburg, O.			
Same			
R. C. Watt, Cedarville, O.			
Same			
Ewe 2 Years Old or Over.			
A. Bordwell & Son, Fargo, N. Y.	Simonton 112 11.569		
Same	Simonton 93 10.946		
G. A. Drummond, Beaconsfield, Canada.	Drummond 90 12.652	First	10.00
Same	Drummond 68 12.639	Second	5.00
Same	Drummond 171 12.675	Third	2.00
Same	Drummond 172 12,676		
W. U. Noble, Brecksville, O.			
A. H. Compton, Monroe, O.			
Same			
C. C. Shaw & Son, Newark, O.			
Same			
R. C. Watt, Cedarville, O.			
Same			
Ewe 1 Year Old and Under 2.			
A. Bordwell & Son, Fargo, N. Y.	Mae 12.998		
Same	Odell 12.332		
G. A. Drummond, Beaconsfield, Canada.	Drummond 251 12.725	First	10.00
Same	Drummond 259 12.731	Second	5.00
Same	Drummond 270 12.738		
Same	rummond 274 12.740		
W. U. Noble, Brecksville, O.		Third	2.00
Same			
A. H. Compton, Monroe, O.			
Same			
C. C. Shaw & Son, Newark, O.			
Same			
R. C. Watt, Cedarville, O.			
Same			

SOUTH DOWNS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ewe Under 1 Year.			
A. Bordwell & Son, Fargo, N. Y.	Beauty, 13779	Second	3.00
Same	Flora 13,780		
G. A. Drummond, Beaconsfield, Canada.	Drummond 302 13,729	First	5.00
Same	Drummond 325 13,732		
Same	Drummond 326 13,733		
W. U. Noble, Brecksville, O.		Third	2.00
Same			
Same			
A. H. Compton, Monroe, O.			
Same			
C. C. Shaw & Son, Newark, O.			
Same			
Chas. J. Stuckey, Mechanicsburg, O.			
Same			
R. C. Watt, Cedarville, O.			
Same			
Flock.			
G. A. Drummond, Beaconsfield, Canada.		First	10.00
W. U. Noble, Brecksville, O.			
A. H. Compton, Monroe, O.			
C. C. Shaw & Son, Newark, O.			
R. C. Watt, Cedarville, O.			
Pen of 4 Lambs.			
G. A. Drummond, Beaconsfield, Canada.		First	10.00
W. U. Noble, Brecksville, O.			
A. H. Compton, Monroe, O.			
C. C. Shaw & Son, Newark, O.			
R. C. Watt, Cedarville, O.			
Chas. J. Stuckey, Mechanicsburg, O.			

Uriah Privett, Greensburg, Ind., Expert Judge.

LINCOLNS AND LEICESTERS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
J. R. Bickett, Xenia, O.	Scopwick 2,947	First	10.00
Same	4,702	Second	5.00
Ram 1 Year Old and Under 2.			
J. R. Bickett, Xenia, O.	6,248	First	10.00
Same	6,586	Second	5.00
Ram Under 1 Year.			
J. R. Bickett, Xenia, O.		First	5.00
Same		Second	3.00
Ewe 2 Years Old or Over.			
J. R. Bickett, Xenia, O.	Daisy	First	10.00
Same		Second	5.00
Ewe 1 Year Old and Under 2.			
J. R. Bickett, Xenia, O.		First	10.00
Same		Second	5.00
Ewe Under 1 Year.			
J. R. Bickett, Xenia, O.		First	5.00
Same		Second	3.00

LINCOLNS AND LEICESTERS — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Flock.			
J. R. Bickett, Xenia, O.		First	10.00
Pen of 4 Lambs.			
J. R. Bickett, Xenia, O.		First	10.00

Uriah Privett, Greensburg, Ind., Expert Judge.

DORSET HORNED.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Ram 2 Years Old or Over.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.	Locust Grove Champion 1,048	Third	2.00
R. Stuyvesant, Allamuchy, N. J.	Tranquillity 800 371	First	10.00
Same	Young Victor 372	Second	5.00
Oliver Barnett, New Concord, O.			
Ram 1 Year Old and Under 2.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.	Locust Grove Model 1,052	Second	5.00
Same	Perfection, 1,050		
R. Stuyvesant, Allamuchy, N. J.	Tranquillity 895 895	First	10.00
Ram Under 1 Year.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.		Third	2.00
Same			
R. Stuyvesant, Allamuchy, N. J.	Tranquillity 973 1,401	First	5.00
Same	Tranquillity 979 1,407	Second	3.00
Ewe 2 Years Old or Over.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.	Locust Grove 76 1,055	Third	2.00
Same	Locust Grove 78 1,056		
R Stuyvesant, Allamuchy, N. J.	Tranquillity 750 378	First	10.00
Same	Tranquillity 808 373	Second	5.00
Oliver Barnett, New Concord, O.			
Ewe 1 Year Old and Under 2.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.	Locust Grove 82 1,058	Third	2.00
Same	Locust Grove 84 1,059		
R. Stuyvesant, Allamuchy, N. J.	Tranquillity 899 899	First	10.00
Same	Tranquillity 936 934	Second	5.00
Oliver Barnett, New Concord, O.			
Ewe Under 1 Year.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.		Third	2.00
Same			
R. Stuyvesant, Allamuchy, N. J.	Tranquillity 969 1.398	First	5.00
Same	Tranquillity 999 1.424	Second	3.00
Oliver Barnett, New Concord, O.			

[illegible]—Concluded.

Owner's Name and Residence.	Name of Animal.	Premium.	Amount.
[illegible]			
[illegible]		[illegible]	1 0
[illegible]			
[illegible]		[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]

SWINE—B. P. BALDWIN, Member in Charge.

BERKSHIRES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over.			
Homer Bros., Greenville, Pa.			
S. W. Calhoun, Apple Creek, O.			
W. J. Tharp, Pataskala, O.	Victor		
Biltmore Farms, Baltimore, N. C.		First	10.00
Same		Second	5.00
L. C. Peterson, Spring Valley, O.	Prize.		
Boar 1 Year Old and Under 2.			
Jas. L. Henderson & Son, Washington, Pa.	Lord Highelen		
Homer Bros., Greenville, Pa.			
W. J. Tharp, Pataskala, O.	Buckshot		
Biltmore Farms, Baltimore. N. C.		Second	5.00
Same			
Samuel Wilkin, Russell, O.	Russell, Jr.		
K. B. Claugh, North Amherst, O.	Rocklands Joy	First	10.00
L. C. Peterson, Spring Valley, O.	Jones		
Boar 6 Months Old and Under 1 Year.			
Jas. L. Henderson & Son, Washington, Pa.	First Choice A.		
Homer Bros., Greenville, Pa.			
S. W. Calhoun, Apple Creek, O.	Gov. Nash		
W. J. Tharp, Pataskala, O.			
Same			
Biltmore Farms, Baltimore, N. C.		First	8.00
Same		Second	5.00
Same		Third	3.00
J. Meigs Miller, Greersville, O.	Lord Knox		
K. B. Claugh, No. Amherst, O.	Topper		
L. C. Peterson, Spring Valley, O.	Valley Boy		
Boar Under 6 Months Old.			
John A. Axline, Pataskala, O.			
Homer Bros, Greenville, Pa.			
Same			
S. W. Calhoun, Apple Creek, O.			
W. J. Tharp, Pataskala, O.		Second	3.00
Biltmore Farms, Baltimore, N C.			
Same			
S. Stoller & Son, Galion, O.		Third	2.00
Same			
K. B. Claugh, No. Amherst, O	Columbus	First	5.00
L. C. Peterson, Spring Valley, O.	P. Valley		
Sow 2 Years Old and Over.			
Homer Bros., Greenville, Pa.			
W. J. Tharp, Pataskala, O.	Model Queen	First	10.00
Biltmore Farms, Baltimore, N. C.		Second	5.00
Same			
Same			
K. B. Claugh, No. Ameherst, O.	Elma Majestic of N. A.		
L. C. Peterson Spring Valley, O.	Faultless		
Sow 1 Year Old and Under 2.			
John A. Axline, Pataskala. O.			
Homer Bros., Greenville, Pa.			
W. J. Tharp, Pataskala, O.	Model P.		
Biltmore Farms, Baltimore. N. C.		First	10.00
Same		Second	5.00
Same			
Same			
Same			
S. Stoller & Son. Galion, O.	Grand Lady 2d		
K B. Claugh, No. Amherst, O.	Darkness Lady II		
Same			
L. C. Peterson, Spring Valley, O.	Moddle C. 2d		

DORSET HORNED—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Flock.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.			
R. Stuyvesant, Allamuchy, N. J.		First	10.00
Pen of 4 Lambs.			
Oliver Barnett, New Concord, O.			
Jas. L. Henderson & Son, Washington, Pa.			
R. Stuyvesant, Allamuchy, N. J.		First	10.00

Uriah Privett, Greensburg, Ind., Expert Judge.

FAT SHEEP.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Pen of 2 Wethers 2 Years Old or Over.			
R. & W. Postle, Camp Chase, O.		First	8.00
Same		Second	5.00
Pen of 2 Wethers 1 Year Old and Under 2.			
R & W. Postle, Camp Chase, O.		First	8.00
Pen of 2 Wether Lambs.			
T. D. Postle, Alton, O.		Second	3.00
Same			
C. G. Postle, Camp Chase, O.		First	5.00
Same			

Uriah Privett, Greensburg, Ind., Expert Judge.

SWINE—B. P. BALDWIN, Member in Charge.

BERKSHIRES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over.			
Homer Bros., Greenville, Pa			
S. W. Calhoun, Apple Creek, O			
W. J. Tharp, Pataskala, O	Victor		
Biltmore Farms, Baltimore, N. C		First	10.00
Same		Second	5.00
L. C. Peterson, Spring Valley, O	Prize.		
Boar 1 Year Old and Under 2.			
Jas. L. Henderson & Son, Washington, Pa	Lord Highelen		
Homer Bros., Greenville, Pa			
W. J. Tharp, Pataskala, O	Buckshot		
Biltmore Farms, Baltimore. N. C		Second	5.00
Same			
Samuel Wilkin, Russell, O.	Russell, Jr.		
K. B. Claugh, North Amherst, O	Rocklands Joy	First	10.00
L. C. Peterson, Spring Valley, O	Jones		
Boar 6 Months Old and Under 1 Year.			
Jas. L. Henderson & Son, Washington, Pa	First Choice A		
Homer Bros., Greenville, Pa			
S. W. Calhoun, Apple Creek, O	Gov. Nash		
W. J. Tharp, Pataskala. O			
Same			
Biltmore Farms, Baltimore. N. C		First	8.00
Same		Second	5.00
Same		Third	3.00
J. Meigs Miller, Greersville, O	Lord Knox		
K. B. Claugh, No. Amherst, O	Topper		
L. C. Peterson, Spring Valley, O	Valley Boy		
Boar Under 6 Months Old.			
John A. Axline, Pataskala, O			
Homer Bros, Greenville, Pa			
Same			
S. W. Calhoun, Apple Creek, O			
W. J. Tharp, Pataskala, O		Second	3.00
Biltmore Farms, Baltimore, N C			
Same			
S. Stoller & Son, Galion, O		Third	2.00
Same			
K. B. Claugh, No. Amherst, O	Columbus	First	5.00
L. C. Peterson, Spring Valley, O	P. Valley		
Sow 2 Years Old and Over.			
Homer Bros., Greenville, Pa			
W. J. Tharp, Pataskala, O	Model Queen	First	10.00
Biltmore Farms, Baltimore, N. C		Second	5.00
Same			
Same			
K. B. Claugh, No. Ameherst, O	Elma Majestic of N. A.		
L. C. Peterson Spring Valley, O	Faultless		
Sow 1 Year Old and Under 2.			
John A. Axline, Pataskala. O			
Homer Bros., Greenville, Pa			
W. J. Tharp, Pataskala, O	Model P.		
Biltmore Farms, Baltimore. N. C		First	10.00
Same		Second	5.00
Same			
Same			
Same			
S. Stoller & Son. Galion. O	Grand Lady 3d		
K B. Claugh, No. Amherst, O	Darkness Lady II		
Same			
L. C. Peterson, Spring Valley, O	Moddle C. 2d		

BERKSHIRES—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Sow 6 Months Old and Under 1 Year.			
John A. Axline, Pataskala, O.			
Homer Bros., Greenville, Pa.			
Same			
S. W. Calhoun, Apple Creek, O.			
W. J. Tharp, Pataskala, O.	Queen of Granville		
Biltmore Farms, Baltimore, N. C.		First	8.00
Same		Second	5.00
Same			
K. B. Claugh, No. Amherst, O.		Third	3.00
Same			
Same			
L. C. Peterson, Spring Valley, O.	Valley Girl		
Same			
K. B. Claugh, No. Amherst, O.	Rockland Bemiel 5th		
Sow Under 6 Months Old.			
John A. Axline, Pataskala, O.		Third	2.00
Same			
Homer Bros., Greenville, Pa.			
Same			
S. W. Calhoun, Apple Creek, O.			
W. J. Tharp, Patalaska, O.			
Biltmore Farms, Baltimore, N. C.			
Same			
Same			
Samuel Wilkin, Russell, O.	Lustre Beauty	First	5.00
Same	Lady Lee	Second	3.00
J. Meigs Miller, Greersville, O.	Black Bess		
Same	Iness		
S. Stoller & Son, Galion, O.			
Same			
L. C. Peterson, Spring Valley, O.	P. Queen		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar with 4 of His Get.			
Homer Bros., Greenville, Pa.			
Biltmore Farms, Baltimore, N. C.		First	15.00
Same			
Breeding Sow with 4 of Her Pigs.			
John A. Axline, Pataskala, O.			
W. J. Tharp, Pataskala, O.	Model Queen	First	15.00
Biltmore Farms, Baltimore, N. C.			
Same			
K. B. Claugh, No. Amherst, O.			
Boar and 3 Sows Over 1 Year Old.			
Homer Bros., Greenville, Pa.			
Biltmore Farms, Baltimore, N. C.		First	15.00
Same			
K. B. Claugh, No. Amherst, O.			
L. C. Peterson, Spring Valley, O.			
Boar and 3 Sows Under 1 Year Old.			
Homer Bros., Greenville, Pa.			
Biltmore Farms, Baltimore, N. C.		First	15.00
Same			
K. B. Claugh, No. Amherst, O.			
L. C. Peterson, Spring Valley, O.			

W. R. Harvey, Sibley, Ill., Expert Judge.

POLAND CHINAS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over			
J. M. Klever, Bloomingburg, O.		First	10.00
Crawford Bros., Cedarville, O.	Black Walnut		
Samuel Wilkin, Russell, O.	Hard to Beat		
J. H. Jenkins, Mt. Liberty, O.	J's Big Chief		
F. M. Hays, Piketon, O.	Ideal Sunshine H		
F. B. Stewart, Espyville Sta., Pa.	Whiteface		
Oliver Plank, Camp Chase, O.	Special	Second	15.00
Mavis Bros., Edgerton, O.	Black Joe Perfection		

Expert Judge — Chas. Frasier.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 1 Year Old and Under 2			
H. Ingalls, Alton, O.	Chief Wilkes		
F. C. Lampe, Jeffersonville, O.			
Same			
J. H. Drake, Cedarville, O.	Perfect King		
G. M. Kinikin & Co., Hamilton, O.	Rough Rider		
Samuel Wilkin, Russell, O.	U. S. Tecumseh		
A. H. Mather, Wilmington, O.	A. H. Wilkes	Second	5.00
W. A. Smiley, Milligan Ind.	Ambition		
C. W. Haines, Centreville, O.		First	10.00
Kerr & Stephenson, Westminster, O.			
W. S. Orr, Uniopolis, O.			
Grubb & Richardson, Rural Dale, O.	Victor		
Same	Perfection		
E. A. Keller, Prospect, O.	Ohio Boy		
Same	Keller's Prospect		
F. Gartin & Sons, Barney, Ind.	Chief's Rival		
Wiseley & Wiseley, Oakwood, O.	Grand Tecumseh		
Same	Gen. Joubert		
Shellenberger & Cox, Camden, O.	Simply Perfection		
Same	Top Chief		
C. S. Eppley, Zanesville, O.	Dewey		

Expert Judge — W. R. Harvey.

POLAND CHINAS—Continued.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 6 Months Old and Under 1 Year.			
H. Ingalls, Alton, O.			
J. Lovett & Sons, Quincy, O.			
Same			
Frank Wagner, Mansfield, O.			
F. C. Lampe, Jeffersonville, O.		Third	3.00
Same			
J. M. Klever, Bloomingburg, O.			
J. H. Drake, Cedarville, O.	Perfect King 2d		
H. Bradford & Son, Rochester, O.		Second	5.00
G. M. Kinikin & Co., Hamilton, O.			
W. A. Smiley, Milligan, Ind.	Victor of Parke		
Perry Wilson, Centreville, O.		First	8.00
J. H. Jenkins, Mt. Liberty, O.	Blocky Chief		
C. W. O'Harra, Galloway, O.			
F. M. Hays, Piketon, O.			
Christian Bosse, New Stark, O.	Gold Standard		
Grubb & Richardson, Rural Dale, O.	McKinley		
F. Gartin & Sons, Burney, Ind.			
Same			
Wiseley & Wiseley, Oakwood, O.	Graceful Mack		
Shellenberger & Cox, Camden, O.	Banner Chief		
C. S. Eppley, Zanesville, O.	Dexter		
Mavis Bros., Edgerton, O.	Mavis S. Black Joe		

Expert Judge — Chas. Frasier.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount
Boar Under 6 Months Old			
H. Ingalls, Alton, O.			
Frank Wagner Mansfield, O.			
Same			
J. M. Klever, Bloomingburg, O.			
Crawford Bros., Cedarville, O.			
G. M. Kinikin & Co., Hamilton, O.			
A. H. Mather, Wilmington, O.			
W. A. Smiley, Milligan, Ind.			
Same			
Same			
C. W. Haines, Centreville, O.		First	5.00
Same			
J. H. Jenkins,, Mt. Liberty, O.			
F. M. Hays, Piketon, O.			
Same			
Grubb & Richardson, Rural Dale, O.			
E. A. Keller, Prospect, O.	Rob Roy		
Same	Little Joe		
F. Gartin & Son, Burney, Ind.			
Same			
Wiseley & Wiseley, Oakwood, O.			
Same			
Oliver Plank, Camp Chase, O.			
Shellenberger & Cox, Camden, O.		Second	3.00
Same			
F. Kolb & Son, Ontario, O.	Chief Protection G.	Third	2.00
Same	Chief Protection B.		
Mavis Bros., Edgerton, O.			

POLAND CHINAS—Continued.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Sow 2 Years Old or Over.			
J. M. Klever, Bloomingburg, O.		First	10.00
J. H. Drake, Cedarville, O.	Black Maid		
W. A. Smiley, Milligan, Ind.	Nora B.		
F. M. Hays, Piketon, O.	Trinket		
Same	Choice		
Wiseley & Wiseley, Oakwood, O.	Lady Jamison	Second	5.00
Shellenberger & Cox, Camden, O.	Clara Sanders		
C. S. Eppley, Zanesville, O.	Femilea		
Mavis Bros., Edgerton, O.	Hadley's Queen		
Same	Elma A.		

Expert Judge — Chas. Frasier.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Sow 1 Year Old and Under 2.			
H. Ingalls, Alton, O.	Slick Wilkes		
J. M. Klever. Bloomingburg, O.	Happy Girl	First	10.00
J. H. Drake, Cedarville, O.	Check Daughter		
Same	Young Chief 2d		
Samuel Wilkin, Russell, O.	Tecumseh Lady		
Same	Tecumseh Maid		
W. A. Smiley, Milligan, Ind.	Kate B.		
Same	Lady King		
Same	Nannie S. 2d		
J. H. Jenkins, Mt. Liberty, O.	Lady Big Chief		
W. S. Orr, Uniopolis, O.			
Same			
Same			
Same			
Grubb & Richardson, Rural Dale, O.	Black Beauty		
Wiseley & Wiseley, Oakwod, O.	Matchless Beauty	Second	5.00
Same	Grand Look		
Same	Delphi Queen		
Shellenberger & Cox, Camden, O.	Chief's Perfect		
Same	Chief's Perfect 2d		
Same	Model Fashion		
C. S. Eppley, Zanesville,, O.	Grand Fashion		

Expert Judge — W. R. Harvey.

POLAND CHINAS—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount
Sow 6 Months Old and Under 1 Year.			
H. Ingalls, Alton, O.			
Frank Wagner, Mansfield, O.			
J. M. Klever, Bloomingburg, O.			
Same			
J. H. Drake, Cedarville, O.	Corwin Gene		
Same	Corwin Gene 2d		
H. Bradford & Son, Rochester, O.		Second	5.00
J. H. Jenkins, Mt. Liberty, O.			
C. W. O'Harra, Galloway, O.			
F. M. Hays, Piketon, O.			
Same			
Grubb & Richardson, Rural Dale, O.			
Same			
F. Gartin & Son, Burney, Ind.			
Same			
Same			
Wiseley & Wiseley, Oakwood O.	Wiseley Model	First	8.00
Same	Climax Lil		
Same	Lil Again		
Shellenberger & Cox, Camden, O.			
Same			
Same			
C. S. Eppley, Zanesville, O.	Daisy Slick		
Same	Black Beauty		
Mavis Bros., Edgerton, O.		Third	3.00
Same			
Same			

Expert Judge — Chas. Frasier.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Sow Under 6 Months Old.			
H. Ingalls, Alton, O.			
Frank Wagner, Mansfield, O.			
J. M. Klever, Bloomingburg, O.		Third	2.00
Crawford Bros., Cedarville, O.			
G. M. Kinkin & Co., Hamilton, O.			
Same			
A. H. Mather, Wilmington, O.			
Same			
W. A. Smiley, Milligan, Ind.			
Same			
Same			
Same			
C. W. Haines, Centreville, O.		Second	3.00
Same			
J. H. Jenkins, Mt. Liberty, O.			
F. M. Hays, Piketon, O.		First	5.00
Same			
Grubb & Richardson, Rural Dale, O.			
E. A. Keller, Prospect, O.	Prospects Queen		
Same	Jeweled Darkness		
F. Gartin & Son, Burney, Ind.			
Same			
Wiseley & Wiseley, Oakwood, O.			
Shellenberger & Cox, Camden, O.			
Same			
Same			
F. Kalb & Son, Ontario, O.	First Choice		
Mavis Bros., Edgerton, O.			
Same			
J. M. Klever, Bloomingburg, O.			

Expert Judge — Chas. Frasier.

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar with 4 of His Get.			
J. M. Klever, Bloomingburg, O.			
G. M. Kinkin & Co., Hamilton, O.			
A. H. Mather, Wilmington, O.			
W. A. Smiley, Milligan, Ind.			
C. W. Haines, Centreville, O.		1st	15.00
J. H. Jenkins, Mt. Liberty, O.			
F. M. Hays, Piketon, O.			
W. S. Orr, Uniopolis, O.			
F. Gartin & Son, Burney, Ind.			
Mavis Bros., Edgerton, O.			

Expert Judge — W. R. Harvey.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Sow with 4 of Her Pigs.			
J. M. Klever, Bloomingburg, O.		First	15.00
W. A. Smiley, Milligan, Ind.			
C. S. Eppley, Zanesville, O.			

Expert Judge, Chas. Frasier.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar and 3 Sows, All Over 1 Year Old.			
J. M. Klever, Bloomingburg, O.			
J. H. Drake, Cedarville, O.			
Samuel Wilkin, Russell, O.			
W. A. Smiley, Milligan, Ind.			
F. M. Hays, Piketon, O.			
W. S. Orr, Uniopolis, O.			
Wiseley & Wiseley, Oakwood, O.		First	15.00
Shellenberger & Cox, Camden, O			
C. S. Eppley, Zanesville, O.			
Mavis Bros., Edgerton, O.			

Expert Judge — W. R. Harvey.

SWEEPSTAKES—Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar and 3 Sows, All Under 1 Year Old.			
J. M. Klever, Bloomingburg, O.			
H. Bradford & Son, Rochester, O.		First	15.00
G. M. Kinikin & Co., Hamilton, O.			
W. A. Smiley, Milligan, Ind.			
C. W. Haines, Centreville, O.			
F. M. Hays, Piketon, O.			
F. Gartin & Son, Burney, Ind.			
Wiseley & Wiseley, Oakwood, O.			
Shellenberger & Cox, Camden, O.			
Mavis Bros., Edgerton, O.			
J. H. Drake, Cedarville, O.			

Expert Judge, Chas. Frasier.

Special Offer by the Ohio Poland China Record Co.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar and 2 Sows of Any Age.			
H. Ingalls, Alton, O.			
G. M. Kinikin & Co., Hamilton, O.			
Samuel Wilkin, Russell, O.			
Wiseley & Wiseley, Oakwood, O.			
Shellenberger & Cox, Camden, O.			
J. M. Klever, Bloomingburg, O.		First	
Boar Pig Under 1 Year Old.			
Frank Wagner, Mansfield, O.			
F. C. Lampe, Jeffersonville, O.			
G. M. Kinikin & Co., Hamilton, O.			
Perry Wilson, Centreville, O.		First	
Christian Bosse, New Stark, O.			
Shellenberger & Cox, Camden, O.			
J. M. Klever, Bloomingburg, O.			

Expert Judge, Chas. Frasier.

CHESTER WHITES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over.			
F. P. & J. J. Hardin, South Warsaw, O.	Leader	Second	5.00
C. Hintz, Fremont, O.	Dewey H.		
W. T. Dever, Lucasville, O.	Protection Chief	First	10.00
Boar 1 Year Old and Under 2.			
F. P. & J. J. Hardin, South Warsaw, O.	Leader's Chief	First	10.00
T. P. Dill, Westerville, O.			
J. L. Beringer, Marion, O.	See Me Win	Second	5.00
C. Hintz, Fremont, O.	Dick		
Boar 6 Months Old and Under 1 Year.			
J. L. Beringer, Marion, O.	Bob		
C. Hintz, Fremont, O.	Chub	Third	3.00
F. P. & J. J. Hardin, South Warsaw, O.	Balance All	First	8.00
Same	White Cloud	Second	5.00
Same			

CHESTER WHITES — Concluded.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar Under 6 Months Old.			
F. P. & J. J. Hardin, South Warsaw, O.		First	5.00
Same			
Same		Third	2.00
J. L. Beringer, Marion, O.			
W. T. Dever, Lucasville, O.			
C. Hintz, Fremont, O.	Dick 8th	Second	3.00
Same	Dick 9th		
Sow 2 Years Old or Over.			
J. L. Beringer, Marion, O.	Maud 2d		
Same	Red Ribbon	Second	5.00
W. T. Dever, Lucasville, O.	Claud	First	10.00
Same	Fanny		
C. Hintz, Fremont, O.	Shorttail 4th		
Sow 1 Year Old and Under 2.			
F. P. & J. J. Hardin, South Warsaw, O.	Miss Protection	Second	5.00
Same			
J. L. Beringer, Marion, O.	Lilly B.		
Same			
W. T. Dever, Lucasville, O.	Pride of the Valley	First	10.00
C. Hintz, Fremont, O.	Dolly		
F. P. & J. J. Hardin, South Warsaw, O.			
Sow 6 Months Old and Under 1 Year.			
F. P. & J. J. Hardin, South Warsaw, O.	Fidellis Girl	Second	5.00
Same			
Same			
J. L. Beringer, Marion, O.			
W. T. Dever, Lucasville, O.	Beauty	First	8.00
C. Hintz, Fremont, O.	Bess	Third	3.00
Sow Under 6 Months Old.			
F. P. & J. J. Hardin, South Warsaw, O.		First	5.00
Same			
Same		Third	2.00
J. L. Beringer, Marion, O.			
W. T. Dever, Lucasville, O.			
C. Hintz, Fremont, O.	Bess 7th	Second	3.00
Same	Bess 8th		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar with 4 of His Get.			
F. P. & J. J. Hardin, South Warsaw, O.		First	15.00
Breeding Sow with 4 of Her Pigs.			
F. P. & J. J. Hardin, South Warsaw, O.		First	15.00
Boar and 3 Sows, All Over 1 Year Old.			
F. P. & J. J. Hardin, South Warsaw, O.			
J. L. Beringer, Marion, O.			
W. T. Dever, Lucasville, O.		First	15.00
Boar and 3 Sows, All Under 1 Year Old.			
F. P. & J. J. Hardin, South Warsaw, O.		First	15.00
C. Hintz, Fremont, O.			

Expert Judge, W. R. Harvey.

DUROC JERSEYS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over.			
O. Walter & Co., Lebanon, O	Fancy Lad 2d	First	10.00
Same	Warren W	Second	5.00
Boar 1 Year Old and Under 2.			
R. C. Watt, Cedarville, O		First	10.00
O. Walter & Co., Lebanon, O	Beloy's Wonder	Second	5.00
Same			
Boar 6 Months Old and Under One Year.			
R. C. Watt, Cedarville, O		Second	5.00
O. Walter & Co., Lebanon, O		First	8.00
Same		Third	3.00
Same			
Boar Under 6 Months Old.			
F. B. Stewart, Espyville Sta., Pa	Royal Red		
R. C. Watt, Cedarville, O		First	5.00
Same		Third	2.00
O. Walter & Co., Lebanon, O		Second	3.00
Same			
Same			
Sow 2 Years Old or Over.			
R. C. Watt, Cedarville, O.			
O. Walter & Co., Lebanon, O	Katie Wonder 7	First	10.00
Same	Katie Wonder 6	Second	5.00
Sow 1 Year Old and Under 2.			
R. C. Watt, Cedarville, O			
O. Walter & Co., Lebanon, O	Lucy I. Wonder II	First	10.00
Same	Goldy Duchess II	Second	5.00
Same			
Sow 6 Months Old and Under 1 Year.			
O. Walter & Co., Lebanon, O		First	8.00
Same		Second	5.00
Same		Third	3.00
Sow Under 6 Months Old.			
F. B. Stewart, Espyville Sta., Pa	Red Flossie		
R. C. Watt, Cedarville, O		Second	3.00
Same			
O. Walter & Co., Lebanon, O		First	5.00
Same		Third	2.00
Same			

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar with 4 of His Get.			
O. Walter & Co., Lebanon, O.		First	15.00
Breeding Sow with 4 of Her Pigs.			
R. C. Watt, Cedarville, O.			
O. Walter & Co., Lebanon, O.		First	15.00
Boar and 3 Sows, All Over 1 Year Old.			
O. Walter & Co., Lebanon, O.		First	15.00
Boar and 3 Sows, All Under 1 Year Old.			
R. C. Watt, Cedarville, O.			
O. Walter & Co., Lebanon, O.		First	15.00

Expert Judge — W. R. Harvey.

SUFFOLK, YORKSHIRE, CHESHIRES AND VICTORIAS.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar 2 Years Old or Over.			
Bascom & McMurray, California, Mich.	Sharon Boy	Second	5.00
Same	Shenango Startle	First	10.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Royal		
Boar 1 Year Old and Under 2.			
Bascom & McMurray, California, Mich.	Charmer	First	10.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Headlight		
Boar 6 Months Old and Under 1 Year.			
Bascom & McMurray, California, Mich.	Hero	First	8.00
Same	True Glory	Second	5.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Boy		
Boar Under 6 Months Old.			
Bascom & McMurray, California, Mich.		First	5.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Carl		
Sow 2 Years Old or Over.			
Bascom & McMurray, California, Mich.	Eva H. 5	First	10.00
Same	Graceful	Second	5.00
F. B. Stewart, Espyville Sta., Pa.	Grace Hastings		
Sow 1 Year Old and Under 2.			
Bascom & McMurray, California, Mich.	Helen G.	Second	5.00
Same	Lillie M.	First	10.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Dew Drop		
Sow 6 Months Old and Under 1 Year.			
Bascom & McMurray, California, Mich.	Sunshine	Second	5.00
Same	Beauty	First	8.00
F. B. Stewart, Espyville Sta., Pa.	Shenango Belle		
Sow Under 6 Months Old.			
Bascom & McMurray, California, Mich.		First	5.00
F. B. Stewart, Espyville Sta., Pa.	Shenango May		

SWEEPSTAKES.

Owner's Name and Postoffice.	Name of Animal.	Premium.	Amount.
Boar with 4 of His Get.			
Bascom & McMurray, California, Mich		First	10.00
F. B. Stewart, Espyville Sta., Pa			
Breeding Sow with 4 of Her Pigs.			
Bascom & McMurray, California, Mich		First	10.00
F. B. Stewart, Espyville Sta., Pa			
Boar and 3 Sows, All Over 1 Year Old.			
Bascom & McMurray, California, Mich		First	10.00
F. B. Stewart, Espyville Sta., Pa			
Boar and 3 Sows, All Under 1 Year Old.			
Bascom & McMurray, California, Mich		First	10.00
F. B. Stewart, Espyville Sta., Pa			

POULTRY—T. L. CALVERT, Member in Charge.

CLASS I—AMERICAN.

Owner's Name and Postoffice	Kind of Fowl.	Amount.
Barred Plymouth Rock.		
Chas. McClave, New London, O.	Best Cock	1.25
Oliver Plank, Camp Chase, O.	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
Oliver Plank, Camp Chase, O.	Best Cockerel	1.25
Eugene Sites, Elyria, O.	2d "	.75
Chas. Hopper, Ashley, O.	3d "	.25
Chas. McClave, New London, O.	Best Hen	1.25
Chas. Hopper, Ashley, O.	2d "	.75
Jackson & Osborn, Jacksontown, O.	3d "	.25
Jas. Storey, Dayton, O.	Best Pullet	1.25
Chas. Hopper, Ashley, O.	2d "	.75
Oliver Plank, Camp Chase, O.	3d "	.25
Chas Hopper, Ashley, O.	Best Breeding Pen	2 00
Chas. McClave, New London, O.	2d "	1.00
White Plymouth Rock.		
W. T. Elliott, Bloomingburg, O.	Best Cock	1.25
M. W. Morris, Bloomingburg, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
W. T. Elliott, Bloomingburg, O.	Best Cockerel	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
Thos. Corey, New Carlisle, O.	Best Hen	1.25
W. T. Elliott, Bloomingburg, O.	2d "	.75
Same	3d "	.25
Same	Best Pullet	1.25
Same	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
C. E. & W. Smith, Ashley, O.	2d "	1.00
Buff Plymouth Rock.		
Chas. McClave, New London, O.	Best Cock	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
C. Thumm, Salem, O.	3d "	25
Frank Wetzel, Painesville, O.	Best Cockerel	1.25
C. Thumm, Salem, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
C. Thumm, Salem, O.	Best Hen	1.25
Same	2d "	.75
Frank Wetzel, Painesville, O.	3d "	.25
C. Thumm, Salem, O.	Best Pullet	1.25
Same	2d "	.75
Frank Wetzel, Painesville, O.	3d "	.25
C. Thumm, Salem, O.	Best Breeding Pen	2.00
Frank Wetzel, Painesville, O.	2d "	1.00
White Wyandotte.		
Chas. McClave, New London, O.	Best Cock	1.25
Same	2d "	.75
C. E. & W. Smith, Ashley, O.	3d "	.25
Chas. McClave, New London, O.	Best Cockerel	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
Same	Best Hen	1.25
C. H. Bell, Ashley, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
Same	Best Pullet	1.25
Same	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
Same	2d "	1.00

CLASS I — AMERICAN — Continued.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Silver Wyandotte.		
J. R. Ross, Level, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d "	.75
M. M. Myer, New Dover, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Same	2d "	.75
Farber Bros., Sandyville, O.	3d "	.25
F. D. Bennett, Galena, O.	Best Hen	1.25
C. H. Eldridge, Galena, O.	2d "	.75
J. R. Ross, Level, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
C. H. Eldridge, Galena, O.	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
F. D. Bennett, Galena, O.	2d "	1.00
Golden Wyandotte.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
C. E. & W. Smith, Ashley, O.	Best Cockerel	1.25
Same	2d "	.75
Same	3d "	.25
J. A. Tucker, Concord, Mich.	Best Hen	1.25
Same	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
C. E. & W. Smith, Ashley, O.	Best Pullet	1.25
Same	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
J. A. Tucker, Concord, Mich.	2d "	1.00
Black Wyandotte.		
J. R. Ross, Level, O.	Best Cock	1.25
Eugene Sites, Elyria, O.	2d "	.75
Farber Bros., Sandyville, O.	3d "	.25
J. R. Ross, Level, O.	Best Cockerel	1.25
Eugene Sites, Elyria, O.	2d "	.75
J. R. Ross, Level, O.	Best Hen	1.25
Eugene Sites, Elyria, O.	2d "	.75
Same	3d "	.25
J. R. Ross, Level, O.	Best Pullet	1.25
Eugene Sites, Elyria, O.	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
Buff Wyandotte.		
Chas. McClave, New London, O.	Best Cock	1.25
Eugene Sites, Elyria, O.	2d "	.75
Bridge & Zimmer, Zimmer, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Eugene Sites, Elyria, O.	2d "	.75
Same	Best Hen	1.25
Farber Bros., Sandyville, O.	2d "	.75
M. M. Myers, New Dover, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Pullet	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Same	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d "	1.00

CLASS I — AMERICAN — Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
White and Black Java.		
A. H. Kochensparger, Junction City, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
M. M. Myers, New Dover, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Same	2d "	.75
Same	Best Hen	1.25
Same	2d "	.75
Farber Bros., Sandyville, O.	3d "	.25
Same	Best Pullet	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
A. H. Kochensparger, Junction City, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Breeding Pen	2.00

CLASS II — ASIATIC.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Light Brahma.		
Chas. McClave, New London, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
Same	Best Cockerel	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Same	3d "	.25
Chas. McClave, New London, O.	Best Hen	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Farber Bros., Sandyville, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Same	3d "	.25
J. A. Tucker, Concord, Mich.	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d "	1.00
Dark Brahma.		
C. E. & W. Smith, Ashley, O.	Best Cock	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
C. E. & W. Smith, Ashley, O.	Best Cockerel	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Farber Bros., Sandyville, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Hen	1.25
Farber Bros., Sandyville, O.	2d "	.75
C. E. & W. Smith, Ashley, O.	3d "	.25
Same	Best Pullet	1.25
Same	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
C. E. & W. Smith, Ashley, O.	Best Breeding Pen	2.00
J. A. Tucker, Concord, Mich.	2d "	1.00
Buff Cochin.		
J. A. Tucker, Concord, Mich.	Best Cock	1.75
Same	2d "	.75
Chas. McClave, New London, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Same	2d "	.75
Chas. McClave, New London, O.	3d "	.25
Same	Best Hen	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
H. Pfannkuchen, Hyde Park, O.	3d "	.25
J. R. Ross, Level, O.	Best Pullet	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
Chas. McClave, New London, O.	2d "	1.00

CLASS II—ASIATIC—Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Partridge Cochin.		
Chas. McClave, New London, O	Best Cock	1.25
C. Gammerdinger, Columbus, O	2d "	.75
J. A. Tucker, Concord, Mich	3d "	.25
C. E. & W. Smith, Ashley, O	Best Cockerel	1.25
Thos. Corey, New Carlisle, O.	2d "	.75
C. Gammerdinger, Columbus, O	3d "	.25
C. E. & W. Smith, Ashley, O	Best Hen	1.25
Chas. McClave, New London, O	2d "	.75
C. E. & W. Smith, Ashley, O	3d	.25
Same	Best Pullet	1.25
C. Gammerdinger, Columbus, O	2d "	.75
C. E. & W. Smith, Ashley, O	3d "	.25
Same	Best Breeding Pen	2.00
Same	2d "	1.00
White Cochin.		
W. S. Carle, New Garden, O	Best Cock	1.25
J. A. Tucker, Concord, Mich	2d "	.75
J. R. Ross, Level, O	3d "	.25
J. A. Tucker, Concord, Mich	Best Cockerel	1.25
C. Gammerdinger, Columbus, O	2d "	.75
J. A. Tucker, Concord, Mich	Best Hen	1.25
W. S. Carle, New Garden, O	2d "	.75
Farber Bros., Sandyville, O	3d "	.25
J. A. Tucker, Concord, Mich	Best Pullet	1.25
Same	2d "	.75
C. Gammerdinger, Columbus, O	3d "	.25
J. A. Tucker, Concord, Mich	Best Breeding Pen	2.00
W. S. Carle, New Garden, O	2d "	1.00
Black Cochin.		
C. Gammerdinger, Columbus, O	Best Cock	1.25
J. A. Tucker, Concord, Mich	2d "	.75
Same	3d "	.25
Same	Best Cockerel	1.25
J. R. Ross, Level, O	Best Hen	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Same	3d "	.25
Same	Best Pullet	1.25
Same	Best Breeding Pen	2.00
Black Langshan.		
Chas. McClave, New London, O	Best Cock	1.25
C. Gammerdinger, Columbus, O	2d "	.75
Ralph H. Main, Delaware, O	3d "	.25
Chas. McClave, New London, O	Best Cockerel	1.25
Ralph H. Main, Delaware, O	2d "	.75
Same	3d "	.25
Chas. McClave, New London, O	Best Hen	1.25
Ralph H. Main, Delaware, O	2d "	.75
J. R. Ross, Level, O	3d "	.25
Chas. McClave, New London, O	Best Pullet	1.25
Same	2d "	.75
Ralph H. Main, Delaware, O	3d "	.25
Same	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O	2d "	1.00

CLASS III — MEDITERRANEAN.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
S. C. Brown Leghorn.		
C. F. Chalfant, Salem, O.	Best Cock	1.25
Chas. McClave, New London, O.	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Same	Best Cockerel	1.25
C. H. Bell, Ashley, O.	2d “	.75
Same	3d “	.25
Thos. Corey, New Carlisle, O.	Best Hen	1.25
Chas. McClave, New London, O.	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
C. H. Bell, Ashley, O.	Best Pullet	1.25
Same	2d “	.75
Eugene Sites, Elyria, O.	3d “	.25
C. H. Bell, Ashley, O.	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d “	1.00
R. C. Brown Leghorn.		
C. Gammerdinger, Columbus, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
I. T. Honawalt, Continental, O.	3d “	.25
Same	Best Cockerel	1.25
Same	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Thos. Corey, New Carlisle, O.	Best Hen	1.25
A. H. Kochensparger, Junction City, O.	2d “	.75
I. T. Honawalt, Continental, O.	3d “	.25
Same	Best Pullet	1.25
Same	2d “	.75
Same	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d “	1.00
S. C. White Leghorn.		
Clark & Troll, St. Clairsville, O.	Best Cock	1.25
C. H. Bell, Ashley, O.	2d “	.75
Chas. McClave, New London, O.	3d “	.25
Clark & Troll, St. Clairsville, O.	Best Cockerel	1.25
Same	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Chas. McClave, New London, O.	Best Hen	1.25
Same	2d “	.75
C. H. Bell, Ashley, O.	3d “	.25
Clark & Troll, St. Clairsville, O.	Best Pullet	1.25
Chas. McClave, New London, O.	2d “	.75
Clark & Troll, St. Clairsville, O.	3d “	.25
Chas. McClave, New London, O.	Best Breeding Pen	2.00
Clark & Troll, St. Clairsville, O.	2d “	1.00
R. C. White Leghorn.		
C. Gammerdinger, Columbus, O.	Best Cock	1.25
Thos. Corey, New Carlisle, O.	2d “	.75
C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Same	2d “	.75
Same	Best Hen	1.25
Same	2d “	.75
Same	Best Pullet	1.25
Same	2d “	.75
Same	Best Breeding Pen	2.00
Black Leghorn.		
Thos. Corey, New Carlisle, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Same	Best Cockerel	1.25
Same	2d “	.75
Farber Bros., Sandyville, O.	3d “	.25
C. Gammerdinger, Columbus, O.	Best Hen	1.25
Farber Bros., Sandyville, O.	2d “	.75
M. M. Myer, New Dover, O.	3d “	.25
C. Gammerdinger, Columbus, O.	Best Pullet	1.25
Same	2d “	.75
Farber Bros., Sandyville, O.	3d “	.25

CLASS III — MEDITERRANEAN — Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Buff Leghorn.		
Eugene Sites, Elyria, O.	Best Cock	1.25
Robt. Bell, Ashley, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Cockerel	1.25
Robt. Bell, Ashley, O.	2d "	.75
Same	3d "	.25
C. F. Chalfant, Salem, O.	Best Hen	1.25
Robt. Bell, Ashley, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Pullet	1.25
Same	2d "	.75
I. T. Honawalt, Continental, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d "	1.00
Black Minorca.		
C. E. & W. Smith, Ashley, O.	Best Cock	1.25
G. W. Gillett, Wellington, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
H. B. Gregory & Son, Akron, O.	Best Cockerel	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
Rufus Ferrell, Sabina, O.	3d "	.25
H. B. Gregory & Son, Akron, O.	Best Hen	1.25
Rufus Ferrell, Sabina, O.	2d "	.75
H. B. Gregory & Son, Akron, O.	3d "	.25
Same	Best Pullet	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
H. B. Gregory & Son, Akron, O.	3d "	.25
Same	Best Breeding Pen	2.00
C. E. & W. Smith, Ashley, O.	2d "	1.00
White Minorca.		
Thos. Corey, New Carlisle, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Same	Best Cockerel	1.25
Carrie Swisher, Hebron, O.	2d "	.75
Same	Best Hen	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Same	3d "	.25
Same	Best Pullet	1.25
Same	Best Breeding Pen	2.00
Blue Andalusian.		
Eugene Sites, Elyria, O.	Best Cock	1.25
J. R. Ross, Level, O.	2d "	.75
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Eugene Sites, Elyria, O.	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Hen	1.25
Eugene Sites, Elyria, O.	2d "	.75
J. R. Ross, Level, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
Same	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Black Spanish.		
C. Gammerdinger, Columbus, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
Same	Best Cockerel	1.25
Same	2d "	.75
A. H. Kochensparger, Junction City, O.	Best Hen	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Same	3d "	.25
Same	Best Pullet	1.25
Same	2d "	.75
Same	Best Breeding Pen	2.00

CLASS IV — POLISH.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
W. C. Black Polish.		
Mrs. C. Gammerdinger, Columbus, O.	Best Cock	1.25
Chas. McClave, New London, O.	Best Cockerel	1.25
M. M. Myer, New Dover, O.	Best Hen	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
Same	3d “	.25
Same	Best Breeding Pen	2.00
Silver Polish—Bearded and Plain.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
Same	3d “	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Same	Best Hen	1.25
Same	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Mrs. C. Gammerdinger, Columbus, O.	Best Breeding Pen	2.00
White Polish —Bearded and Plain.		
Mrs. C. Gammerdinger, Columbus, O.	Best Cock	1.25
J F. Lutz, Amanda, O.	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Same	Best Hen	1.25
Same	2d “	.75
Same	Best Pullet	1.25
Same	2d “	.75
Same	Best Breeding Pen	2.00
Golden Polish—Bearded and Plain.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
Mrs. C. Gammerdinger, Columbus, O.	Best Hen	1.25
Same	2d “	.75
Farber Bros., Sandyville, O.	3d “	.25
Mrs. C. Gammerdinger, Columbus, O.	Best Pullet	1.25
Same	Best Breeding Pen	2.00
Buffed Laced Polish.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
J. A. Tucker, Concord,. Mich.	Best Hen	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25

CLASS V — HAMBURGS.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Golden Spangled Hamburg		
Julius Frank, Sherbondy, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
J. R. Ross, Level, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Cockerel	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Farber Bros., Sandyville, O.	2d “	.75
Julius Frank, Sherbondy, O.	3d “	.25
Same	Best Pullet	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Breeding Pen	2.00
Mrs. C. Gammerdinger, Columbus, O.	2d “	1.00

CLASS V — HAMBURGS—Continued.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Silver Spangled Hamburg.		
Julius Frank, Sherbondy, O.	Best Cock	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Same	Best Cockerel	1.25
Julius Frank, Sherbondy, O.	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Pullet	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
Julius Frank, Sherbondy, O.	3d “	.25
Same	Best Breeding Pen	2.00
Mrs. C. Gammerdinger, Columbus, O.	2d “	1.00
Golden Pencilled Hamburg.		
Farber Bros., Sandyville, O.	Best Cock	1.25
Julius Frank, Sherbondy, O.	2d “	.75
Same	3d “	.25
Mrs. C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
Same	3d “	.25
Julius Frank, Sherbondy, O.	Best Pullet	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Silver Pencilled Hamburg.		
Julius Frank, Sherbondy, O.	Best Cock	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d “	.75
Julius Frank, Sherbondy, O.	Best Cockerel	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Pullet	1.25
Same	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Black Hamburg.		
Julius Frank, Sherbondy, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
Julius Frank, Sherbondy, O.	3d “	.25
Same	Best Cockerel	1.25
Same	2d “	.75
J. R. Ross, Level, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Same	2d “	.75
Farber Bros., Sandyville, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Pullet	1.25
Same	2d “	.75
White Hamburg.		
Julius Frank, Sherbondy, O.	Best Cock	1.25
Farber Bros., Sandyville, O.	2d “	.75
Mrs. C. Gammerdinger, Columbus, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Hen	1.25
Same	2d “	.75
Thos. Cory, New Carlisle, O.	3d “	.25
Julius Frank, Sherbondy, O.	Best Pullet	1.25
Same	2d “	.75

CLASS V — HAMBURGS — Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Red Cap.		
Chas. McClave, New London, O.	Best Cock	1.25
A. H. Kochensparger, Junction City, O.	2d "	.75
Mrs. C. Gammerdinger, Columbus, O.	3d "	.25
Chas. McClave, New London, O.	Best Cockerel	1.25
W. S. Carle, New Garden, O.	2d "	.75
M. M. Myer, New Dover, O.	Best Hen	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
Chas. McClave, New London, O.	3d "	.25
W. S. Carle, New Garden, O.	Best Pullet	1.25
Chas. McClave, New London, O.	2d "	.75

CLASS VI — FRENCH.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Houdan.		
H. V. Shoemaker, Ashley, O.	Best Cock	1.25
Same	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
H. V. Shoemaker, Ashley, O.	Best Cockerel	1.25
Same	2d "	.75
F. D. Bennett, Galena, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Hen	1.25
H. V. Shoemaker, Ashley, O.	2d "	.75
Same	3d "	.25
Same	Best Pullet	1.25
Same	2d "	.75
Same	3d "	.25
Same	Best Breeding Pen	2.00
F. D. Bennett, Galena, O.	2d "	1.00
Crevecoeur and La Fleche.		
Eugene Sites, Elyria, O.	Best Cock	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Same	Best Cockerel	1.25
Same	2d "	.75
Mrs. C. Gammerdinger, Columbus, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Hen	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Same	Best Pullet	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
Same	3d "	.25
Eugene Sites, Elyria, O.	Best Breeding Pen	2.00
Mrs. C. Gammerdinger, Columbus, O.	2d "	1.00

CLASS VII — DORKING.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Silver Gray Dorking.		
Farber Bros., Sandyville, O.	Best Cock	1.25
J. A. Tucker, Concord, Mich.	2d "	.75
Mrs. C. Gammerdinger, Columbus, O.	3d "	.25
Same	Best Cockerel	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
Same	Best Hen	1.25
Farber Bros., Sandyville, O.	2d "	.75
Mrs. C. Gammerdinger, Columbus, O.	3d "	.25
C. E. & W. Smith, Ashley, O.	Best Pullet	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
J. A. Tucker, Concord, Mich.	3d "	.25
Colored Dorking.		
M. M. Myer, New Dover, O.	Best Cock	1.25
Mrs. C. Gammerdinger, Columbus, O.	2d "	.75
Same	Best Hen	1.25
Same	2d "	.75
M. M. Myer, New Dover, O.	3d "	.25
Mrs. C. Gammerdinger, Columbus, O.	Best Pullet	1.25

CLASS VIII — GAME.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Black-breasted Red Game.		
Wellington Poultry Co., Wellington, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
M. M. Myer, New Dover, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Wellington Poultry Co., Wellington, O.	Best Hen	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Jackson Osborn, Jacksontown, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Pullet	1.25
Same	Best Breeding Pen	2.00
Sumatra Game.		
Wellington Poultry Co., Wellington, O.	Best Cock	1.25
M. M. Myer, New Dover, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Cockerel	1.25
Eugene Sites, Elyria, O.	2d "	.75
Wellington Poultry Co., Wellington, O.	Best Hen	1.25
Eugene Sites, Elyria, O.	2d "	.75
Same	3d "	.25
M. M. Myer, New Dover, O.	Best Pullet	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Same	Best Breeding Pen	2.00
C. Gammerdinger, Columbus, O.	2d "	1.00
Golden Duck-wing Game.		
C. Gammerdinger, Columbus, O.	Best Cock	1.25
Same	Best Hen	1.25
Silver Duck-wing Game.		
Eugene Sites, Elyria, O.	Best Cock	1.25
Thos. Cory, New Carlisle, O.	2d "	.75
C. Gammerdinger, Columbus, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Hen	1.25
C. Gammerdinger, Columbus, O.	2d "	.75
Thos. Cory, New Carlisle, O.	3d "	.25
C. Gammerdinger, Columbus, O.	Best Pullet	1.25

CLASS VIII — GAME — Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Red Pile Game.		
C. Gammerdinger, Columbus, O.	Best Cock	1.25
Jackson & Osborn, Jacksontown, O.	2d "	.75
A. H. Kochensparger, Junction City, O.	3d "	.25
Wellington Poultry Co., Wellington, O.	Best Cockerel	1.25
Jackson & Osborn, Jacksontown, O.	2d "	.75
A. H. Kochensparger, Junction City, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Hen	1.25
Thos. Cory, New Carlisle, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Wellington Poultry Co., Wellington, O.	Best Pullet	1.25
A. H. Kochensparger, Junction City, O.	2d "	.75
Cornish Indian Game.		
C. E. & W. Smith, Ashley, O.	Best Cock	1.25
Bridge & Zimmer, Zimmer, O.	2d "	.75
F. D. Bennett, Galena, O.	3d "	.25
Mrs. Joe S. Lane, Mt. Vernon, O.	Best Cockerel	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
F. D. Bennett, Galena, O.	3d "	.25
Jas. Skeen, Tiffin, O.	Best Hen	1.25
C. E. & W. Smith, Ashley, O.	2d "	.75
F. D. Bennett, Galena, O.	3d "	.25
Ed. G. Brenneman, Zimmer, O.	Best Pullet	1.25
F. D. Bennett, Galena, O.	2d "	.75
Mrs. Joe S. Lane, Mt. Vernon, O.	3d "	.25
F. D. Bennett, Galena, O.	Best Breeding Pen	2.00
C. E. & W. Smith, Ashley, O.	2d "	1.00

CLASS IX — GAME BANTAM.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
B. B. R. Bantam.		
Mrs. Joe S. Lane, Mt. Vernon, O.	Best Cock	1.25
The Gem Bantam Yards, Dayton, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Amos Silcott, Mt. Vernon, O.	2d "	.75
Chas. B. Gaylord, Sunbury, O.	3d "	.25
Eugene Sites, Elyria, O.	Best Hen	1.25
Mrs. Joe S. Lane, Mt. Vernon, O.	2d "	.75
The Gem Bantam Yards, Dayton, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
Chas. B. Gaylord, Sunbury, O.	2d "	.75
Amos Silcott, Mt. Vernon, O.	3d "	.25
J. A. Tucker, Concord, Mich.	Best Breeding Pen	2.00
Eugene Sites, Elyria, O.	2d "	1.00
Golden Duck. Wing Bantam.		
Thos. Corey, New Carlisle, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	3d "	.25
Same	Best Hen	1.25
Silver Duck. Wing Bantam.		
The Gem Bantam Yards, Dayton, O.	Best Cock	1.25
Eugene Sites, Elyria, O.	2d "	.75
Thos. Corey, New Carlisle, O.	3d "	.25
The Gem Bantam Yards, Dayton, O.	Best Cockerel	1.25
Same	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
Thos. Cory, New Carlisle, O.	Best Hen	1.25
The Gem Bantam Yards, Dayton, O.	2d "	.75
Eugene Sites, Elyria, O.	3d "	.25
The Gem Bantam Yards, Dayton, O.	Best Pullet	1.25
Eugene Sites, Elyria, O.	2d "	.75
The Gem Bantam Yards, Dayton, O.	3d "	.25

CLASS IX — GAME BANTAM — Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Red Pile Bantam.		
Bridge & Zimmer, Zimmer, O.	Best Cock	1.25
C. Gammerdinger, Columbus, O.	2d “	.75
The Gem Bantam Yards, Dayton, O.	Best Cockerel	1.25
Same	2d “	.75
Same	3d “	.25
C. Gammerdinger, Columbus, O.	Best Hen	1.25
Bridge & Zimmer, Zimmer, O.	2d “	.75
The Gem Bantam Yards, Dayton, O.	Best Pullet	1.25
Same	2d “	.75

CLASS X — BANTAM (Not Game).

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
Golden Seabright Bantam.		
W. S. Carle, New Garden, O.	Best Cock	1.25
J. A. Tucker, Concord, Mich.	2d “	.75
W. S. Carle, New Garden, O.	3d “	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
Same	2d “	.75
The Gem Bantam Yards, Dayton, O.	3d “	.25
W. S. Carle, New Garden, O.	Best Hen	1.25
Same	2d “	.75
Same	3d “	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
Same	2d “	.75
Jackson & Osborne, Jacksontown, O.	3d “	.25
W. S. Carle, New Garden, O.	Best Breeding Pen	2.00
Jackson & Osborn, Jacksontown, O.	2d “	1.00
Silver Seabright Bantam.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
The Gem Bantam Yards, Dayton, O.	2d “	.75
J. R. Ross, Level, O.	3d “	.25
J. A. Tucker, Concord, Mich.	Best Cockerel	1.25
The Gem Bantam Yards, Dayton, O.	2d “	.75
J. A. Tucker, Concord, Mich.	3d “	.25
J. R. Ross, Level, O.	Best Hen	1.25
The Gem Bantam Yards, Dayton, O.	2d “	.75
C. Gammerdinger, Columbus, O.	3d “	.25
J. A. Tucker, Concord, Mich.	Best Pullet	1.25
Same	2d “	.75
Same	3d “	25
Same	Best Breeding Pen	2.00
The Gem Bantam Yards, Dayton, O.	2d “	1.00
Buff Cochin Bantam.		
J. A. Tucker, Concord, Mich.	Best Cock	1.25
The Gem Bantam Yards, Dayton, O.	2d “	.75
Bridge & Zimmer, Zimmer, O.	3d “	.25
Same	Best Cockerel	1.25
J. A. Tucker, Concord, Mich.	2d “	.75
The Gem Bantam Yards, Dayton, O.	3d “	.25
Bridge & Zimmer, Zimmer, O.	Best Hen	1.25
Same	2d “	.75
Eugene Sites, Elyria, O.	3d “	.25
Bridge & Zimmer, Zimmer, O.	Best Pullet	1.25
The Gem Bantam Yards, Dayton, O.	2d “	.75
J. A. Tucker, Concord, Mich.	3d “	.25
Bridge & Zimmer, Zimmer, O.	Best Breeding Pen	2.00
The Gem Bantam Yards, Dayton, O.	2d “	1.00

CLASS X—BANTAM (Not Game)—Concluded.

Owner's Name and Postoffice.	Kind of Fowl.	Amount.
White and Black Cochin Bantam.		
Bridge & Zimmer, Zimmer, O	Best Cock	1.25
The Gem Bantam Yards, Dayton, O	2d "	.75
Farber Bros., Sandyville, O	3d "	.25
George J. Koch, Dayton, O	Best Cockerel	1.25
Jackson & Osborn, Jacksontown, O	2d "	.75
The Gem Bantam Yards, Dayton, O	3d "	.25
Bridge & Zimmer, Zimmer, O	Best Hen	1.25
The Gem Bantam Yards, Dayton, O	2d "	.75
Bridge & Zimmer, Zimmer, O	3d "	.25
The Gem Bantam Yards, Dayton, O	Best Pullet	1.25
Same	2d "	.75
Jackson & Osborn, Jacksontown, O	3d "	.25
Bridge & Zimmer, Zimmer, O	Best Breeding Pen	2.00
The Gem Bantam Yards, Dayton, O	2d "	1.00
White and Black Rose-combed Bantam.		
C. Gammerdinger, Columbus, O	Best Cock	1.25
A. H. Kockensparger, Junction City, O	2d "	.75
The Gem Bantam Yards, Dayton, O	3d "	.25
Eugene Sites, Elyria, O	Best Cockerel	1.25
The Gem Bantam Yards, Dayton, O	2d "	.75
Eugene Sites, Elyria, O	Best Hen	1.25
A. H. Kockensparger, Junction City, O	2d "	.75
The Gem Bantam Yards, Dayton, O	3d "	.25
Chas. McClave, New London, O	Best Pullet	1.25
Eugene Sites, Elyria, O	2d "	.75
The Gem Bantam Yards, Dayton, O	3d "	.25
Japanese Bantam.		
H. B. Gregory & Son, Akron, O	Best Cock	1.25
C. E. & W. Smith, Ashley, O	2d "	.75
The Gem Bantam Yards, Dayton, O	3d "	.25
F. D. Bennett, Galena, O	Best Cockerel	1.25
C. E. & W. Smith, Ashley, O	2d "	.75
F. D. Bennett, Galena, O	3d "	.25
H. B. Gregory & Son, Akron, O	Best Hen	1.25
The Gem Bantam Yards, Dayton, O	2d "	.75
Thos. Corey, New Carlisle, O	3d "	.25
F. D. Bennett, Galena, O	Best Pullet	1.25
Same	2d "	.75

CLASS XI — TURKEYS.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
Chas. McClave, New London, O	Best Bronze turkey, old pair	2.00
Same	Best Bronze turkey, young pair	2.00
C. E. & W. Smith, Ashley, O	Best White turkey, old pair	2.00
C. H. Bell, Ashley, O	2d best White Turkey, old pair	1.00
Chas. McClave, New London, O.	Best White turkey, young pair	2.00
C. H. Bell, Ashley, O	2d best White turkey, young pair	1.00
M. M. Myer, New Dover, O	Best Buff turkey, old pair	2.00
J. F. Lutz, Amanda, O	2d best Buff turkey, old pair	1.00
M. M. Myer, New Dover, O	Best Buff turkey, young pair	2.00
G. W. Gillett, Wellington, O	Best Narragansett turkey, old pair	2.00
Chas. McClave, Concord, Mich	2d best Narragansett turkey, old pair	1.00
J. F. Lutz, Amanda, O	Best Narragansett turkey, young pair	2.00
M. M. Myer, New Dover, O	2d best Narragansett turkey, young pair	1.00
Chas. McClave, New London, O	Best Black turkey, old pair	2.00
Thos. Cory, New Carlisle, O	2d best Black turkey, old pair	1.00
C. E. & W. Smith, Ashley, O	Best Black turkey, young pair	2.00
Chas. McClave, New London, O.	2d best Black turkey, young pair	1.00
Thos. Cory, New Carlisle, O.	Best Slate turkey, old pair	2.00
M. M. Myer, New Dover, O	2d best Slate turkey, old pair	1.00
Same	Best Slate turkey, young pair	2.00

AQUATIC DIVISION.

CLASS XII — DUCKS.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
C. E. & W. Smith, Ashley, O.	Best Pekin ducks, old pair	2.00
Chas. McClave, New London, O.	2d best Pekin ducks, old pair	1.00
C. E. & W. Smith, Ashley, O.	Best Pekin ducks, young pair	2.00
Chas. McClave, New London, O.	2d best Pekin ducks, young pair	1.00
Same	Best Aylesbury ducks, old pair	2.00
Same	2d best Aylesbury ducks, old pair	1.00
M. M. Myer, New Dover, O.	Best Rouen ducks, old pair	2.00
Chas. McClave, New London, O.	2d best Rouen ducks, old pair	1.00
C. E. & W. Smith, Ashley, O.	Best Rouen ducks, young pair	2.00
M. M. Myer, New Dover, O.	2d best Rouen ducks, young pair	1.00
Chas. McClave, New London, O.	Best Cayuga ducks, old pair	2.00
J. R. Ross, Level, O.	2d best Cayuga ducks, old pair	1.00
Same	Best Cayuga ducks, young pair	2.00
Same	2d best Cayuga ducks, young pair	1.00
Chas. McClave, New London, O.	Best Crested White ducks, old pair	2.00
J. R. Ross, Level, O.	2d best Crested White ducks, old pair	1.00
C. Gammerdinger, Columbus, O.	Best Crested White ducks, young pair	2.00
M. M. Myer, New Dover, O.	2d best Crested White ducks, young p'r	1.00
Chas. McClave, New London, O.	Best Gray Call, old pair	2.00
M. M. Myer, New Dover, O.	2d best Gray Call, old pair	1.00
C. Gammerdinger, Columbus, O.	Best Gray Call, young pair	2.00
M. M. Myer, New Dover, O.	Best White Call, old pair	2.00
C. Gammerdinger, Columbus, O.	2d best White Call, old pair	1.00
Chas. McClave, New London, O.	Best Muscovey Colored, old pair	2.00
Thos. Cory, New Carlisle, O.	2d best Muscovey Colored, old pair	1.00
Chas. McClave, New Dover, O.	Best Muscovey Colored, young pair	2.00
Same	2d best Muscovey Colored, young pair	1.00
J. A. Tucker, Concord, Mich	2d best Muscovey Colored, old pair	1.00
M. M. Myer, New Dover, O.	2d best Muscovey White, old pair	1.00
Chas. McClave, New London, O.	Best Muscovey White, young pair	2.00
M. M. Myer, New Dover, O.	2d best Muscovey White, young pair	1.00

CLASS XIII — GEESE.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
M. M. Myer, New Dover, O.	Best Toulouse geese, old pair	2.00
Chas. McClave, New London, O.	2d best Toulouse geese, old pair	1.00
M. M. Myer, New Dover, O.	Best Toulouse geese, young pair	2.00
Chas. McClave, New London, O.	2d best Toulouse geese, young pair	1.00
Thos. Cory, New Carlisle, O.	Best Embden geese, old pair	2.00
Chas. McClave, New London, O.	2d best Embden geese, old pair	1.00
C. H. Bell, Ashley, O.	Best Embden geese, young pair	2.00
M. M. Myer, New Dover, O.	2d best Embden geese, young pair	1.00
Chas. McClave, New London, O.	Best African geese, old pair	2.00
Same	Best African geese, young pair	2.00
Same	Best Brown Chinese, old pair	2.00
M. M. Myer, New Dover, O.	2d best Brown Chinese, old pair	1.00
Chas. McClave, New London, O.	Best Brown Chinese, young pair	2.00
M. M. Myer, New Dover, O.	2d best Brown Chinese, young pair	1.00
Chas. McClave, New London, O.	Best White, old pair	2.00
M. M. Myer, New Dover, O.	2d best White, old pair	1.00
Chas. McClave, New London, O.	Best White, young pair	2.00
J. F. Lutz, Amanda, O.	2d best White, young pair	1.00
Thos. Cory, New Carlisle, O.	Best Wild, old pair	2.00
Chas. McClave, New London, O.	2d best Wild, old pair	1.00

CLASS XIV — ORNAMENTAL.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
Eugene Sites, Elyria, O.	Best Ring Neck pheasants	2.00

CLASS XV — PIGEONS.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
W. G. Brown, Columbus, O.	Best collection of pigeons — five varieties in pairs	5.00
Same	2d best collection of pigeons—five varieties in pairs	3.00

CLASS COLLECTIONS.

Owner's Name and Postoffice.	Kind of Fowl.	Amt.
Chas. McClave, New London, O.	Best collection — American class	3.00
Eugene Sites, Elyria, O.	2d best collection — American class	2.00
J. A. Tucker, Concord, Mich.	Best collection — Asiatic class	3.00
Chas. McClave, New London, O.	2d best collection — Asiatic class	2.00
C. Gammerdinger, Columbus, O.	Best collection — Mediterranean class	3.00
Eugene Sites, Elyria, O.	2d best collection—Mediterranean class	2.00
C. Gammerdinger, Columbus, O.	Best collection — Polish class	3.00
Julius Frank, Sherbondy, O.	Best collection — Hamburg class	3.00
C. Gammerdinger, Columbus, O.	Best collection —Games and Game bantams	3.00
The Gem Bantam Yards, Dayton, O.	Best collection — Bantams, not game	3.00
Chas. McClave, New London, O.	Best collection — Turkeys	3.00
M. M. Myer, New Dover, O.	2d best collection — Turkeys	2.00
Chas. McClave, New London, O.	Finest collection of geese	3.00
M. M. Myer, New Dover, O.	2d finest collection of geese	2.00
Chas. McClave, New London, O.	Finest collection of ducks	3.00
M. M. Myers, New Dover, O.	2d finest collection of ducks	2.00
Chas. McClave, New London, O.	Collection and variety of poultry	Medal
Cyphers Incubator Co., Wayland, N. Y.	Incubator in operation	Medal
Same	Brooder in operation	Medal

SIXTH DEPARTMENT.

FARM PRODUCTS—D. J. GREEN, Member in Charge.

Owner's Name and Postoffice.	Name of Article.	Amount.
Grains, Seeds, Tobacco and Cereal Mill Products.		
Albert Pearce, North Ridgeville, O.	Best peck Democrat wheat	$2.00
Powell & Adams, Newark, O.	2d best peck Democrat wheat	1.00
W. D. Whipps, Marion, O.	Best peck Early wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Early wheat	1.00
Same	Best peck White wheat	2.00
W. D. Whipps, Marion, O.	2d best peck White wheat	1.00
Same	Best peck Leader wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Leader wheat	1.00
W. D. Whipps, Marion, O.	Best peck Fulcaster wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Fulcaster wheat	1.00
Same	Best peck Fultz wheat	2.00
Same	2d best peck Fultz wheat	1.00
Albert Pearce, North Ridgeville, O.	Best peck Golden Cross wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Golden Cross wheat	1.00
G. B. Gregg, Pharisburg, O.	Best peck Jones Winter Fife wheat	2.00
Albert Pearce, North Ridgeville, O.	2d best peck Jones W'r Fife wheat	1.00
Same	Best peck Mediterranean wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Mediterranean wheat	1.00
I. B. Keckley, Marysville, O.	Best peck Nigger wheat	2.00
Albert Pearce, North Ridgeville, O.	2d best peck Nigger wheat	1.00
I. B. Keckley, Marysville, O.	Best peck Ontario wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Ontario wheat	1.00
G. B. Gregg, Pharisburg, O.	Best peck Wonder wheat	2.00
J. L. Keckley, Marysville, O.	2d best peck Wonder wheat	1.00
Same	Best peck Poole wheat	2.00
G. B. Gregg, Pharisburg, O.	2d best peck Poole wheat	1.00
J. L. Keckley, Marysville, O.	Best peck Rudy wheat	2.00
Albert Pearce, North Ridgeville, O.	2d best peck Rudy wheat	1.00
W. D. Whipps, Marion, O.	Best peck Royal Australian wheat	2.00
F. M. Whipps, Byhalia, O.	2d best peck Royal Australian wheat	1.00
J. L. Keckley, Marysville, O.	Best peck Valley wheat	2.00
Albert Pearce, North Ridgeville, O.	2d best peck Valley wheat	1.00
W. D. Whipps, Marion, O.	Best peck Velvet Chaff	2.00
Albert Pearce, North Ridgeville, O.	2d best peck Velvet Chaff	1.00
W. D. Whipps, Marion, O.	Best peck Wyandotte Red	2.00
G. B. Gregg, Pharisburg, O.	2d best peck Wyandotte Red	1.00
J. L. Keckley, Marysville, O.	Best peck Black Norway oats	1.50
F. M. Whipps, Byhalia, O.	2d best peck Black Norway oats	.75
J. L. Keckley, Marysville, O.	Best peck Black Tartarian oats	1.50
I. B. Keckley, Marysville, O.	2d best peck Black Tartarian oats	.75
J. L. Keckley, Marysville, O.	Best peck Drogheda oats	1.50
F. M. Whipps, Byhalia, O.	2d best peck Drogheda oats	.75
J. L. Keckley, Marysville, O.	Best peck Improved American oats	1.50
I. B. Keckley, Marysville, O.	2d best peck Improved American oats	.75
Same	Best peck Race Horse oats	1.50
F. M. Whipps, Byhalia, O.	2d best peck Race Horse oats	.75
I. B. Keckley, Marysville, O.	Best peck Seizure oats	1.50
Albert Pearce, North Ridgeville, O.	2d best peck Seizure oats	.75
Same	Best peck Welcome oats	1.50
W. D. Whipps, Marion, O.	2d best peck Welcome oats	.75
Same	Best peck White Wonder oats	1.50
Albert Pearce, North Ridgeville, O.	2d best peck White Wonder oats	.75
J. L. Keckley, Marysville, O.	Best peck White California oats	1.50
F. M. Whipps, Byhalia, O.	2d best peck White California oats	.75
M. J. Leavitt, Mechanicsburg, O.	Best peck White Superior Scotch oats	1.50
F. M. Whipps, Byhalia, O.	2d best p'k White Superior Scotch oats	.75
J. L. Keckley, Marysville, O.	Best peck Winter rye	2.00
F. M. Whipps, Byhalia, O.	2d best peck Winter rye	1.00
Powell & Adams, Newark, O.	Best peck of Winter barley	2.00
J. L. Keckley, Marysville, O.	2d best peck Winter barley	1.00
Powell & Adams, Newark, O.	Best peck of Spring barley	2.00
J. L. Keckley, Marysville, O.	2d best peck of Spring barley	1.00
Same	Best peck of Silver Hull buckwheat	2.00
W. D. Whipps, Marion, O.	2d best peck of Silver Hull buckwh't	1.00
I. B. Keckley, Marysville, O.	Best peck of Japanese buckwheat	2.00
J. L. Keckley, Marysville, O.	2d best peck of Japanese buckwheat	1.00

FARM PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
Grains, Seeds, Tobacco and Cereal Mill Products—Continued.		
Same	Best peck of Russian flax seed	2.00
I. B. Keckley, Marysville, O.	2d best peck of Russian flax seed	1.00
J. L. Keckley, Marysville, O.	Best peck of Common flax seed	2.00
I. B. Keckley, Marysville, O.	2d best peck of Common flax seed	1.00
W. D. Whipps, Marion, O.	Best peck of Timothy seed	2.00
J. L. Keckley, Marysville, O.	2d best peck of Timothy seed	1.00
Same	Best peck of Kentucky Blue Grass seed	2.00
W. D. Whipps, Marion, O.	2d best peck of Kentucky Blue Grass seed	1.00
M. J. Leavitt, Mechanicsburg, O.	Best peck of Mammoth clover seed	2.00
Albert Pearce, North Ridgeville, O.	2d best peck of Mammoth clover seed	1.00
W. D. Whipps, Marion, O.	Best peck of Common clover seed	2.00
J. L. Keckley, Marysville, O.	2d best peck of Common clover seed	1.00
F. M. Whipps, Byhalia, O.	Best peck of Crimson clover seed	2.00
W. D. Whipps, Marion, O.	2d best peck of Crimson clover seed	1.00
Same	Best peck of orchard grass seed	2.00
J. L. Keckley, Marysville, O.	2d best peck of orchard grass seed	1.00
Same	Best peck of Red Top grass seed	2.00
I. B. Keckley, Marysville, O.	2d best peck of Red Top grass seed	1.00
F. M. Whipps, Byhalia, O.	Best peck of Millet seed	2.00
W. D. Whipps, Marion, O.	2d best peck of Millet seed	1.00
J. L. Keckley, Marysville, O.	Best peck of Hungarian grass seed	2.00
Albert Pearce, North Ridgeville, O.	2d best peck of Hungarian grass seed	1.00
J. L. Keckley, Marysville, O.	Best display of grain in straw and threshed	5.00
Albert Pearce, North Ridgeville, O.	2d best display of grain in straw and threshed	3.00
L. M. Gregg, Dayton, O.	Best display of grasses and sedges	3.00
Albert Pearce, North Ridgeville, O.	2d best display of grasses & sedges	2.00

Owner's Name and Postoffice.	Name of Article.	Amt.
Shelled Beans to be shown in Glass Jars.		
W. D. Whipps, Marion, O.	Best 2 quarts of Lima beans	1.00
Albert Pearce, North Ridgeville, O.	2d best two quarts of Lima beans	.50
W. D. Whipps, Marion, O.	Best two quarts of Marrowfat beans	1.00
Powell & Adams, Newark, O.	2d best two quarts of Marrowfat beans	.50
J. L. Keckley, Marysville, O.	Best two quarts of Navy beans	1.00
Albert Pearce, North Ridgeville, O.	2d best two quarts of Navy beans	.50
Same	Best two quarts of Golden Wax beans	1.50
J. L. Keckley, Marysville, O.	2d best two quarts of Golden Wax beans	.50
J. L. Keckley, Marysville, O.	Best two quarts White Kidney beans	1.00
I. B. Keckley, Marysville, O.	2d best two quarts White Kidney beans	.50
J. L. Keckley, Marysville, O.	Best two quarts Red Kidney beans	1.00
Powell & Adams, Newark, O.	2d best two quarts Red Kidney beans	.50
F. M. Whipps, Byhalia, O.	Best one-half peck Marrowfat Field peas	2.00
Powell & Adams, Newark, O.	2d best ½ peck Marrowfat Field peas	1.00
Albert Pearce, North Ridgeville, O.	Best one-half peck Canada Field peas	2.00
J. L. Keckley, Marysville, O.	2d best one-half p'k Canada Field peas	1.00
Tobacco.		
D. F. Corwin, Springboro, O.	Best four hands Ohio Seed Leaf	3.00
L. M. Gregg, Dayton, O.	2d best four hands Ohio Seed Leaf	1.00
D. F. Corwin, Springboro, O.	Best four hands White Burley	3.00
Powell & Adams, Newark, O.	2d best four hands White Burley	1.00
D. F. Corwin, Springboro, O.	Best four hands Little Dutch	3.00
Powell & Adams, Newark, O.	2d best four hands Little Dutch	1.00
G. B. Gregg, Pharisburg, O.	Best four hands Zimmer's Spanish	3.00
D. F. Corwin, Springboro, O.	2d best four hands Zimmer's Spanish	1.00

FARM PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Corn.		
Geo. Garlinghouse, Johnstown, O.	Best twelve ears Yellow Field corn.	3.00
F. M. Whipps, Byhalia, O.	2d best twelve ears Yellow Field corn	2.00
J. L. Keckley, Marysville, O.	Best twelve ears White Field corn.	3.00
F M. Whipps, Byhalia, O.	2d best twelve ears White Field corn.	2.00
J. L. Keckley, Marysville, O.	Best twelve ears any other color Field corn	3.00
Thos. Taylor, Waynesville, Ill.	2d best twelve ears of any other Field corn	2.00
F. M. Whipps, Byhalia, O.	Best twelve ears Yellow Flint corn.	3.00
Albert Pearce, North Ridgeville, O.	2d best twelve ears Yellow Flint corn.	2.00
J. L. Keckley, Marysville, O.	Best twelve ears White Flint corn.	3.00
W. D. Whipps, Marion, O.	2d best twelve ears White Flint corn.	2.00
Albert Pearce, North Ridgeville, O.	Best twelve ears Rice popcorn.	2.00
Powell & Adams, Newark, O.	2d best twelve ears Rice popcorn.	1.00
J. L. Keckley, Marysville, O.	Best twelve ears Golden Queen popcorn	2.00
Albert Pearce, North Ridgeville, O.	2d best twelve ears Golden Queen popc.	1.00
J. L. Keckley, Marysville, O.	Best twelve ears any other variety popcorn	2.00
I. B. Keckley, Marysville, O.	2d best twelve ears any other variety popcorn	1.00
J. L. Keckley, Marysville, O.	Best display of Field corn, and not less than eight ears of each variety.	10.00
Powell & Adams, Newark, O.	2d best display of Field corn, not less than eight ears of each variety.	5.00
F. M. Whipps, Byhalia, O.	Best display of Sweet corn, not less than eight ears of each variety.	5.00
J. L. Keckley, Marysville, O.	2d best display of Sweet corn, not less than eight ears of each variety.	3.00
Powell & Adams, Newark, O.	Best display of corn on the stalk, all varieties	8.00
J. L. Keckley, Marysville, O.	2d best display of corn on the stalk, all varieties.	4.00
G. B. Gregg, Pharisburg, O.	Best twenty pounds broom corn.	2.00
W. D. Whipps, Marion, O.	2d best twenty pounds broom corn.	1.00
Mrs. H. Bieber, Delaware, O.	Best package of dairy butter.	5.00
G. Alba Bartholomew, Huntsburg, O.	2d best package of dairy butter.	3.00
A. L. Perry, Lewis Center, O.	Best exhibition of dairy butter, quality and quantity considered.	8.00
Mrs. H Bieber, Delaware, O.	Best exhibition of creamery butter, quality and quantity considered.	8.00
Potatoes and Other Root Products.		
J L. Keckley, Marysville, O.	Best peck of Alexander Prolific.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Alexander Prolific.	1.00
J. L. Keckley, Marysville, O.	Best peck of Banner.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Banner.	1.00
G. B. Gregg, Pharisburg, O.	Best peck of Bliss Triumph.	1.50
Powell & Adams, Newark, O.	2d best peck of Bliss Triumph.	1.00
J. L. Keckley, Marysville, O.	Best peck of Bovee.	1.50
Powell & Adams, Newark, O.	2d best peck of Bovee.	1.00
Same	Best peck of Burbank Seedling.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Burbank Seedling.	1.00
J L. Keckley, Marysville, O.	Best peck of Carman, No. 3.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Carman, No. 3.	1.00
J. L. Keckley, Marysville, O.	Best peck of Dunmore Seedling.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Dunmore Seedling.	1.00
J. P. Grubb, Findlay, O.	Best peck of Early Ohio.	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck of Early Ohio.	1.00
Same	Best peck of Early Rose.	1.50
J. L. Keckley, Marysville, O.	2d best peck of Early Rose.	1.00
Same	Best peck Early Thoroughbred.	1.50
Powell & Adams, Newark, O.	2d best peck Early Thoroughbred.	1.00
M. J. Leavitt, Mechanicsburg, O.	Best peck Empire State.	1.50
J. L. Keckley, Marysville, O.	2d best peck Empire State.	1.00
J. P. Grubb, Findlay, O.	Best peck Everett.	1.50
W. D. Whipps, Marion, O.	2d best peck Everett.	1.00
Albert Pearce, North Ridgeville, O.	Best peck Freeman.	1.50
J. P. Grubb, Findlay, O.	2d best peck Freeman.	1.00
J. L. Keckley, Marysville, O.	Best peck Green Mountain.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck Green Mountain.	1.00
J. L. Keckley, Marysville, O.	Best peck State Rose.	1.50
W. D. Whipps, Marion, O.	2d best peck State Rose.	1.00
J. L. Keckley, Marysville, O.	Best peck Lee's Favorite.	1.50
Powell & Adams, Newark, O.	2d best peck Lee's Favorite.	1.00

FARM PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Pototoes and other Root Products—Continued.		
Albert Pearce, North Ridgeville, O.	Best peck Monroe Seedling	1.50
W. D. Whipps, Marion, O.	2d best peck Monroe Seedling	1.00
J L. Keckley, Marysville, O.	Best peck New Queen	1.50
Powell & Adams, Newark, O.	2d best peck New Queen	1.00
J L. Keckley, Marysville, O.	Best peck Potentate	1.50
Albert Pearce, North Ridgeville, O.	2d best peck Potentate	1.00
J L. Keckley, Marysville, O.	Best peck Queen of the Valley	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck Queen of the Valley	1.00
I. B. Keckley, Marysville, O.	Best peck Red Seneca Beauty	1.50
J L. Keckley, Marysville, O.	2d best peck Red Seneca Beauty	1.00
Same	Best peck Rural New Yorker, No. 2.	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck Rural New Yorker, No. 2	1.00
J. L. Keckley, Marysville, O.	Best peck Sir William	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck Sir William	1.00
W. D. Whipps, Marion, O.	Best peck Uncle Sam	1.50
J. L. Keckley, Marysville, O.	2d best peck Uncle Sam	1.00
Same	Best peck Vaughn	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck Vaughn	1.00
W. D. Whipps, Marion, O.	Best peck White Elephant	1.50
Albert Pearce, North Ridgeville, O.	2d best peck White Elephant	1.00
J L. Keckley, Marysville, O.	Best peck White Seneca Beauty	1.50
W. D. Whipps, Marion, O.	2d best peck White Seneca Beauty	1.00
Same	Best peck White Star	1.00
Albert Pearce, North Ridgeville, O.	2d best peck White Star	1.00
G B. Gregg. Pharisburg, O.	Best peck of any other variety	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of any other variety	1.00
J. L. Keckley, Marysville, O.	Best display of Irish potatoes, one peck of each variety	15.00
Flansburgh & Pierson, Leslie, Mich.	2d best display of Irish potatoes, one peck of each variety	10.00
Powell & Adams, Newark, O.	Best peck of Yellow sweet potatoes.	1.50
Albert Pearce, North Ridgeville, O.	2d best peck of Yellow sweet potatoes.	1.00
J. L. Keckley, Marysville, O.	Best peck of Red sweet potatoes	1.50
Albert Pearce, North Ridgeville, O.	Best peck of White sweet potatoes	1.50
Powell & Adams, Newark, O.	Best peck of Red Yams	1.50
A. J. Trumbo, Hanging Rock, O.	Best peck of White yams	1.50
Powell & Adams, Newark, O.	Best display of sweet potatoes and yams, one peck of each variety	5.00
Albert Pearce, North Ridgeville, O.	Best twelve parsnips	2.00
J P. Grubb, Findlay, O.	2d best twelve parsnips	1.00
W. D. Whipps, Marion, O.	Best twelve Danver's carrots	2.00
Albert Pearce, North Ridgeville, O.	2d best twelve Danver's carrots	1.00
Same	Best twelve Long Orange carrots	2.00
John Pearce, Fields, O.	2d best twelve Long Orange carrots.	1.00
J. P. Grubb, Findlay, O.	Best twelve any other variety carrots	2.00
Albert Pearce, North Ridgeville, O.	2d best twelve any other variety carrots	1.00
Same	Best display of carrots	3.00
Powell & Adams, Newark, O.	2d best display of carrots	2.00
M. Douglas Willison, Croton, O.	Best twelve roots salsify	2.00
W. D. Whipps, Marion, O.	2d best twelve roots salsify	1.00
Same	Best six Eclipse beets	1.50
J. P. Grubb, Findlay, O.	2d best six Eclipse beets	.75
Same	Best six Extra Early Turnip beets	1.50
W. D. Whipps, Marion, O.	2d best six Extra Early Turnip beets.	.75
J. L. Keckley, Marysville, O.	Best six Blood Turnip beets	1.50
G. B. Gregg, Pharisburg, O.	2d best six Blood Turnip beets	.75
Powell & Adams, Newark, O.	Best six Long Blood beets	1.50
Albert Pearce, North Ridgeville, O.	Best six Long Blood beets	1.50
Powell & Adams, Newark, O.	Best six Sugar beets	1.50
G. B. Gregg, Pharisburg, O.	2d best six Sugar beets	.75
Albert Pearce, North Ridgeville, O.	Best six Long Red mangel wurzels	1.50
J. L. Keckley, Marysville, O.	2d best six Long Red mangel wurzels.	.75
E. G. Stockman, Prospect, O.	Best six Long Yellow mangel wurzels	1.50
W. D. Whipps, Marion, O.	2d best six Long Yellow mangel wurzels	.75
Powell & Adams, Newark, O.	Best six Golden Tankard mangel wurzels	1.50
E. G. Stockman, Prospect, O.	2d best six Golden Tankard mangel wurzels	.75
J. L. Keckley, Marysville, O.	Best display of beets	5.00
Powell & Adams, Newark, O.	2d best display of beets	3.00
Same	Best six Kohlrabi	1.50
W. D. Whipps, Marion, O.	2d best six Kohlrabi	.75
M. J. Leavitt, Mechanicsburg, O.	Best six rutabagas	1.50

FARM PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Potatoes and other Root Products—Continued.		
Albert Pearce, North Ridgeville, O.	2d best six rutabagas	.75
M. J. Leavitt, Mechanicsburg, O.	Best peck Purple Top turnips	1.50
Albert Pearce, North Ridgeville, O.	2d best peck Purple Top turnips	.75
Powell & Adams, Newark, O.	Best peck White Top turnips	1.50
Albert Pearce, North Ridgeville, O.	2d best peck White Top turnips	.75
J. L. Keckley, Marysville, O.	Best peck Red Weathersfield onions	1.50
M. J. Leavitt, Mechanicsburg, O.	2d best peck Red Weathersfield onions	.75
Same	Best peck Red Globe onions	1.50
J. L. Keckley, Marysville, O.	2d best peck Red Globe onions	.75
M. J. Leavitt, Mechanicsburg, O.	Best peck flat Danver's onions	1.50
Powell & Adams, Newark, O.	2d best peck flat Danver's onions	.75
Same	Best peck Yellow Globe onions	1.50
W. D. Whipps, Marion, O.	2d best peck Yellow Globe onions	.75
M J. Leavitt, Mechanicsburg, O.	Best peck White Globe onions	1.50
Albert Pearce, North Ridgeville, O.	2d best peck White Globe onions	.75
J. L. Keckley, Marysville, O.	Best peck Red Rocca onions	1.50
J. P. Grubb, Findlay, O.	2d best peck Red Rocca onions	.75
Albert Pearce, North Ridgeville, O.	Best peck Potato onions	1.50
J. P. Grubb, Findlay, O.	2d best peck Potato onions	.75
Powell & Adams, Newark, O.	Best peck Prize-taker onions	1.50
J. P. Grubb, Findlay, O.	2d best peck Prize-taker onions	.75
Powell & Adams, Newark, O.	Best display of onions	5.00
W. D. Whipps, Marion, O.	2d best display of onions	3.00
Vegetables.		
J. P. Grubb, Findlay, O.	Best peck Acme tomatoes	1.50
Powell & Adams, Newark, O.	2d best peck Acme tomatoes	.75
J. P. Grubb, Findlay, O.	Best peck Atlantic Prize tomatoes	1.50
Powell & Adams, Newark, O.	2d best peck Atlantic Prize tomatoes	.75
Same	Best peck Buckeye State tomatoes	1.50
J. L. Keckley, Marysville, O.	2d best peck Buckeye State tomatoes	.75
J. P. Grubb, Findlay, O.	Best peck Dwarf Champion tomatoes	1.50
Powell & Adams, Newark, O.	2d best peck Dwarf Champion tomatoes	.75
Albert Pearce, North Ridgeville, O.	Best peck Golden Queen tomatoes	1.50
Powell & Adams, Newark, O.	2d best peck Golden Queen tomatoes	.75
Same	Best peck Ignotum tomatoes	1.50
J P. Grubb, Findlay, O.	2d best peck Ignotum tomatoes	.75
Same	Best peck Livingston's Beauty tomatoes	1.50
J. L. Keckley, Marysville, O.	2d best peck Livingston's Beauty tomatoes	.75
Powell & Adams, Newark, O.	Best peck Perfection tomatoes	1.50
J L. Keckley, Marysville. O.	2d best peck Perfection tomatoes	.75
Powell & Adams, Newark, O.	Best peck Ponderosa tomatoes	1.50
J. P. Grubb, Findlay, O.	2d best peck Ponderosa tomatoes	.75
Same	Best peck The Stone tomatoes	1.50
J. L. Keckley, Marysville, O.	2d best peck The Stone tomatoes	.75
Albert Pearce, North Ridgeville, O.	Best display of tomatoes	5.00
Powell & Adams, Newark, O.	2d best display of tomatoes	3.00
J P. Grubb, Findlay, O.	Best four heads All Seasons cabbage	1.50
W. D. Whipps, Marion, O.	2d best four heads All Seasons cabbage	.75
J L. Keckley, Marysville, O.	Best four heads Large Wakefield cabbage	1.50
Powell & Adams, Newark, O.	2d best four heads Large Wakefield cabbage	.75
W. D. Whipps, Marion, O.	Best four heads Flat Dutch cabbage	1.50
Powell & Adams, Newark, O.	2d best four heads Flat Dutch cabbage	.75
J. P. Grubb, Findlay, O.	Best four heads Red Dutch cabbage	1.50
W. D. Whipps, Marion, O.	2d best four heads Red Dutch cabbage.	.75
J. P. Grubb, Findlay, O.	Best four heads Large Marblehead cabbage	1.50
Powell & Adams, Newark, O.	2d best four heads Large Marblehead cabbage	.75
J. L. Keckley, Marysville, O.	Best four heads Winningstadt cabbage	1.50
J. P. Grubb, Findlay, O.	2d best four heads Winningstadt cab.	.75
Powell & Adams, Newark, O.	Best and heaviest head of cabbage	1.50
J. P. Grubb, Findlay, O.	2d best and heaviest head of cabbage	.75
Same	Best four heads Lenormand's caul'flr.	1.50
Albert Pearce, North Ridgeville, O.	2d best four heads Lenormand's caul'flr	.75
Powell & Adams, Newark, O.	Best display of celery	2.00
W. D. Whipps, Marion, O.	2d best display of celery	1.00
Powell & Adams, Newark, O.	Best twelve largest peppers	1.50
W. D. Whipps, Marion, O	2d best twelve largest peppers	.75
Powell & Adams, Newark, O.	Best display of peppers	2.00

FARM PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Vegetables—Continued.		
J. P. Grubb, Findlay, O.	2d best display of peppers	1.00
Powell & Adams, Newark, O.	Best three Boston Marrow squashes	1.50
J. P. Grubb, Findlay, O.	2d best three Boston Marrow squashes	.75
J. L. Keckley, Marysville, O.	Best three Cushaws squashes	1.50
Powell & Adams, Newark, O.	2d best three Cushaws squashes	.75
J. L. Keckley, Marysville, O.	Best three Essex Hybrid squashes	1.50
I. B. Keckley, Marysville	2d best three Essex Hybrid squashes	.75
Powell & Adams, Newark, O.	Best three Yellow Crook-neck squashes	1.50
J. L. Keckley, Marysville, O.	2d best three Yellow Crook-neck squashes	.75
J. L. Keckley, Marysville, O.	Best three Hubbard squashes	1.50
J. P. Grubb, Findlay, O.	2d best three Hubbard squashes	.75
Powell & Adams, Newark, O.	Best three Pike's Peak squashes	1.50
Same	Best display of squashes	4.00
J. P. Grubb, Findlay, O.	2d best display of squashes	2.00
J. L. Keckley, Marysville, O.	Best and heaviest squash	1.50
Powell & Adams, Newark, O.	2d best and heaviest squash	.75
J. P. Grubb, Findlay, O.	Best three common pumpkins	1.50
Albert Pearce, North Ridgeville, O.	2d best three common pumpkins	.75
Powell & Adams, Newark, O.	Best three sweet pumpkins	1.50
Albert Pearce, North Ridgeville, O.	2d best three sweet pumpkins	.75
Powell & Adams, Newark, O.	Best and largest pumpkin	1.50
Same	Best display of pumpkins	2.00
Same	Best three watermelons—Black Diamond	1.50
W. D. Whipps, Marion, O.	2d best three watermelons—Black Diamond	.75
Powell & Adams, Newark, O.	Best three Cuban Queen watermelons	1.50
W. D. Whipps, Marion, O.	2d best three Cuban Queen watermelons	.75
Albert Pearce, North Ridgeville, O.	Best three Ice Cream watermelons	1.50
Powell & Adams, Newark, O.	2d best three Ice Cream watermelons.	.75
J. P. Grubb, Findlay, O.	Best three Florida Favorite watermelons	1.50
Powell & Adams, Newark, O.	2d best three Florida Favorite watermelons	.75
J. L. Keckley, Marysville, O.	Best three Phinney's Early watermelons	1.50
J. P. Grubb, Findlay, O.	2d best three Phinney's Early watermelons.	.75
Powell & Adams, Newark, O.	Best three Kolb Gem watermelons	1.50
J. P. Grubb, Findlay, O.	2d best three Kolb Gem watermelons	.75
Same	Best three Sweet Heart watermelons	1.50
W. D. Whipps, Marion, O.	2d best three Sweet Heart watermelons	.75
Powell & Adams, Newark, O.	Best and heaviest watermelon	1.50
W. D. Whipps, Marion, O.	2d best and heaviest watermelon	.75
Powell & Adams, Newark, O.	Best display of watermelons	4.00
J. P. Grubb, Findlay, O.	2d best display of watermelons	2.00
Same	Best three Bay View muskmelons	1.50
Powell & Adams, Newark, O.	2d best three Bay View muskmelons	.75
Same	Best three Baltimore muskmelons	1.50
J. P. Grubb, Findlay, O.	2d best three Baltimore muskmelons	.75
Powell & Adams, Newark, O.	Best three Gem muskmelons	1.50
J. P. Grubb, Findlay, O.	2d best three Gem muskmelons	.75
Powell & Adams, Newark, O.	Best three Hackensack muskmelons	1.50
J. P. Grubb, Findlay, O.	2d best three Hackensack muskmelons	.75
Same	Best three Montreal Market muskmelons	1.50
Same	Best three Tip-Top muskmelons	1.50
Powell & Adams, Newark, O.	2d best three Tip-top muskmelons	.75
Same	Best display of muskmelons	4.00
J. P. Grubb, Findlay, O.	2d best display of muskmelons	2.00
Powell & Adams, Newark, O.	Best display of cucumbers	2.00
J. P. Grubb, Findlay, O.	2d best display of cucumbers	1.00
Same	Best three Purple egg plants	2.00
J. L. Keckley, Marysville, O.	2d best three Purple egg plants	1.00
G. B. Gregg, Pharisburg, O.	Best twelve ears of early sweet corn, green	1.50
J. P. Grubb, Findlay, O.	2d best twelve ears of early sweet corn, green	.75
Same	Best twelve ears of late sweet corn, green	1.50

FARM PRODUCTS—Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
Vegetables—Continued.		
W. D. Whipps, Marion, O.	2d best twelve ears of late sweet corn, green	.75
Powell & Adams, Newark, O.	Best display of vegetables	20.00
J. L. Keckley, Marysville, O.	2d best display of vegetables	10.00
County Exhibits — Farm Products.		
Powell & Adams, Newark, O.	Best county exhibit of farm products	125.00
J. L. Keckley, Marysville, O.	2d best county exhibit of farm products	100.00
W. D. Whipps, Marion, O.	3d best county exhibit of farm products	75.00
Albert Pearce, North Ridgeville, O.	4th best county exhibit of farm products	50.00
J. P. Grubb, Findlay, O.	5th best county exhibit of farm products	30.00
Bees and Honey.		
M. J. Leavitt, Mechanicsburg, O.	Best display comb honey	10.00
H. Besse, Delaware, O.	2d best display comb honey	5.00
Jesse Goodrich, Worthington, O.	Best case White Clover comb honey	3.00
H. Besse, Delaware, O.	2d best case White Clover comb honey	2.00
M. J. Leavitt, Mechanicsburg, O.	Best case Basswood comb honey	3.00
H. Besse, Delaware, O.	2d best case Basswood comb honey	2.00
M. J. Leavitt, Mechanicsburg, O.	Best case comb honey from fall flowers	3.00
Jesse Goodrich, Worthington, O.	2d best case comb honey from fall flowers	2.00
M. J. Leavitt, Mechanicsburg, O.	Best twelve pounds extracted honey	3.00
H. Besse, Delaware, O.	2d best twelve pounds extracted honey	2.00
Same	2d best pounds extracted honey	2.00
Jesse Goodrich, Worthington, O.	Best display extracted honey	10.00
M. J. Leavitt, Mechanicsburg, O.	2d best display extracted honey	5.00
Jesse Goodrich, Worthington, O.	Best display candied honey	5.00
H. Besse, Delaware, O.	2d best display candied honey	3.00
Jesse Goodrich, Worthington, O.	Best display beeswax	2.00
M. J. Leavitt, Mechanicsburg, O.	2d best display beeswax	1.00
H. Besse, Delaware, O.	Best Nucleus of Italian bees	3.00
M. J. Leavitt, Mechanicsburg, O.	2d best Nucleus of Italian bees	2.00
Same	Best Nucleus Carniolan bees	3.00
Same	Best display comb foundation	2.00
H. Besse, Delaware, O.	2d best display comb foundation	1.00
Jesse Goodrich, Worthington, O.	Best display honey—comb and extracted	15.00
M. J. Leavitt, Mechanicsburg, O.	2d best display honey—comb and extracted	8.00
Maple Products.		
L. T. Goodwin, Claridon, O.	Best gallon maple syrup	3.00
Lyman Strong, Huntsburg, O.	2d best gallon maple syrup	2.00
C. E. Leavitt, Mechanicsburg, O.	Best three bricks maple sugar	3.00
Lyman Strong, Huntsburg, O.	2d best three bricks maple sugar	2.00
Ava Main, Delaware, O.	Best design in maple sugar	3.00
L. T. Goodwin, Claridon, O.	2d best design in maple sugar	2.00
A. W. Garwood, Middleburg, O.	Best five pounds grained maple sugar	3.00
L. T. Goodwin, Claridon, O.	2d best five pounds grained maple sugar	2.00
Eva Main, Delaware, O.	Best display maple wax	3.00
L. T. Goodwin, Claridon, O.	2d best display maple wax	2.00
C. E. Leavitt, Mechanicsburg, O.	Best county display maple products	15.00
H. D. Hollis, Chardon, O.	2d best display maple products	10.00

SEVENTH DEPARTMENT.

HORTICULTURAL PRODUCTS—D. J. GREEN, Member in Charge.

Owner's Name and Postoffice.	Name of Article.	Amt.
Summer and Fall Apples.		
E. G. Cox, Bradrick, O.	Best six varieties for family use	4.00
J. C. Vergon, Delaware, O.	2d best six varieties for family use	2.00
Mrs. O. C. Stockman, Prospect, O.	Best three varieties for family use	3.00
J. C. Vergon, Delaware, O.	2d best three varieties for family use	1.50
E. G. Cox, Bradrick, O.	Best three varieties of large	3.00
J. C. Vergon, Delaware, O.	2d best three varieties of large	1.50
Same	Best three varieties for market	3.00
Ava Main, Delaware, O.	2d best three varieties for market	1.50
E. G. Stockman, Prospect, O.	Best variety of summer dessert	2.00
J C. Vergon, Delaware, O.	2d best variety of summer dessert	1.00
W. H. West, Chillicothe,, O.	Best variety of fall dessert	2.00
E. G. Stockman, Prospect, O.	2d best variety of fall dessert	1.00
Mrs. O. C. Stockman, Prospect, O.	Best display of ten varieties	6.00
E. G. Stockman, Prospect, O.	2d best display of ten varieties	3.00
Winter Apples.		
E. G. Cox, Bradrick, O.	Best twelve varieties for family use	8.00
J. C. Vergon, Delaware, O.	2d best twelve varieties for family use	4.00
E. G. Cox, Bradrick, O.	Best six varieties for family use	4.00
J. C. Vergon, Delaware, O.	2d best six varieties for family use	2.00
Same	Best six plates of large	4.00
M. I. Shively, Anderson, O.	2d best six plates of large	2.00
J. C. Vergon, Delaware, O.	Best variety of dessert	2.00
E. G. Stockman, Prospect, O.	2d best variety of dessert	1.00
E. G. Cox, Bradrick, O.	Best approved new variety	2.00
M. I. Shively, Anderson, O.	2d best approved new variety	1.00
E. G. Cox, Bradrick, O.	Best six varieties for market	4.00
J. C. Vergon, Delaware, O.	2d best six varieties for market	2.00
Same	Best display	10.00
E. G. Stockman, Prospect, O.	2d best display	5.00
Plate Apples. Summer and Fall.		
E. G. Stockman, Prospect, O.	Best plate Alexander	1.50
R. G. Johnson, Gypsum, O.	2d best plate Alexander	.75
T S. Johnson, Gypsum, O.	Best plate American Summer Pearmain	1.50
E. G. Stockman, Prospect, O.	2nd best plate Amer. Sum. Pearmain	.75
Same	Best plate Benoni	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Benoni	.75
Same	Best plate Cayuga Red Streak	1.50
E. G. Stockman, Prospect, O.	2d best plate Cayuga Red Streak	.75
Ava Main, Delaware, O.	Best plate Chenango Strawberry	1.50
E. G. Cox, Bradrick, O.	2d best plate Chenango Strawberry	.75
R. G. Johnson, Gypsum, O.	Best plate Duchess of Oldenburg	1.50
T. S. Johnson, Gypsum, O.	2d best plate Duchess of Oldenburg	.75
Same	Best plate Fall Pippin	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Fall Pippin	.75
W. H. West, Chillicothe, O.	Best plate Fall Wine	1.50
M. I. Shively, Anderson, O.	2d best plate Fall Wine	.75
R. G. Johnson, Gypsum, O.	Best plate Gravenstein	1.50
T. S. Johnson, Gypsum, O.	2d best plate Gravenstein	.75
Mrs. O. C. Stockman, Prospect, O.	Best plate Jeffreis	1.50
E G. Stockman, Prospect, O.	2d best plate Jeffreis	.75
Mrs. O. C. Stockman, Prospect, O.	Best plate Lowell	1.50
E. G. Stockman, Prospect, O.	2d best plate Lowell	.75
J. C. Vergon, Delaware, O.	Best plate Maiden's Blush	1.50
Mrs. O. C Stockman, Prospect, O.	2d best plate Maiden's Blush	.75
J. C. Vergon, Delaware, O.	Best plate Ohio Nonpareil	1.50
E. G. Stockman, Prospect, O.	2d best plate Ohio Nonpareil	.75
T. S. Johnson, Gypsum, O.	Best plate Porter	1.50
R. G. Johnson, Gypsum, O.	2d best plate Porter	.75
Mrs. O. C. Stockman, Prospect, O.	Best plate Red Astrachan	1.50
E M. Woodard, Kirtland, O.	2d best plate Red Astrachan	.75
E. G. Stockman, Prospect, O.	Best plate St. Lawrence	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate St. Lawrence	.75

HORTICULTURAL PRODUCTS — Continued

Owner's Name and Postoffice.	Name of Article.	Amt.
Plate Apples. Summer and Fall—Continued.		
E. G. Stockman, Prospect, O.	Best plate Summer Queen	1.50
E. M. Woodard, Kirtland, O.	Best plate Sweet Bough	1.50
R. G. Johnson, Gypsum, O.	2d best plate Sweet Bough	.75
E. G. Cox, Bradrick, O.	Best plate Wealthy	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Wealthy	.75
R. G. Johnson, Gypsum, O.	Best plate Western Beauty	1.50
E. G Stockman, Prospect, O.	2d best plate Western Beauty	.75
E. M. Woodard, Kirtland, O.	Best plate Yellow Transparent	1.50
E. G. Stockman, Prospect, O.	2d best plate Yellow Transparent	.75
Winter Apples.		
J. C. Vergon, Delaware, O.	Best plate Bailey's Sweet	1.50
E. G. Stockman, Prospect, O.	2d best plate Bailey's Sweet	.75
J. C. Vergon, Delaware, O.	Best plate Baldwin	1.50
M. I. Shively, Anderson, O.	2d best plate Baldwin	.75
E. G. Stockman, Prospect, O.	Best plate Baltimore	1.50
R. G. Johnson, Gypsum, O.	2d best plate Baltimore	.75
Mrs. O. C. Stockman, Prospect, O.	Best plate Belleflower Yellow	1.50
T. S. Johnson, Gypsum, O.	2d best plate Belleflower Yellow	.75
R. G. Johnson, Gypsum, O.	Best plate Belmont	1.50
T S. Johnson, Gypsum, O.	2d best plate Belmont	.75
M. I. Shively, Anderson, O.	Best plate Ben Davis	1.50
J. C. Vergon, Delaware, O.	2d best plate Ben Davis	.75
E. G. Cox, Bradrick, O.	Best plate Black Gilliflower	1.50
E. G. Stockman, Prospect, O.	2d best plate Black Gilliflower	.75
Same	Best plate Dominie	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Dominie	.75
T. S. Johnson, Gypsum, O.	Best plate Fallawater	1.50
R G. Johnson, Gypsum, O.	2d best plate Fallawater	.75
J. C. Vergon, Delaware, O.	Best plate Fameuse	1.50
E. G. Stockman, Prospect, O.	2d best plate Fameuse	.75
W. W. Farnsworth, Waterville, O.	Best plate Greenville	1.50
C. W. Counter, North Toledo, O.	2d best plate Greenville	.75
E. G. Cox, Bradrick, O.	Best plate Grimes' Golden	1.50
W. H. West, Chillicothe, O.	2d best plate Grimes' Golden	.75
Mrs. O. C. Stockman, Prospect, O.	Best plate Hubbardston	1.50
R. G. Johnson, Gypsum, O.	2d best plate Hubbardston	.75
E. G. Stockman, Prospect, O.	Best plate Jonathan	1.50
J. C. Bear, Dayton, O.	2d best plate Jonathan	.75
R G. Johnson, Gypsum, O.	Best plate King (Tompkins Co.)	1.50
J. C. Vergon, Delaware, O.	2d best plate King (Tompkins Co.)	.75
M. I. Shively, Anderson, O.	Best plate Limber Twig	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Limber Twig	.75
J. C. Vergon, Delaware, O.	Best plate Minkler	1.50
E. G. Stockman, Prospect, O.	2d best plate Minkler	.75
Ava Main, Delaware, O.	Best plate Northern Spy	1.50
T. S. Johnson, Gypsum, O.	2d best plate Northern Spy	.75
W. H. West, Chillicothe, O.	Best plate Paradise Winter Sweet	1.50
E G. Stockman, Prospect, O.	2d best plate Paradise Winter Sweet	.75
J. C. Vergon, Delaware, O.	Best plate Peck's Pleasant	1.50
T. S. Johnson, Gypsum, O.	2d best plate Peck's Pleasant	.75
J. C. Bear, Dayton, O.	Best plate Pewaukee	1.50
Mrs. O. C. Stockman, Prospect, O.	2d best plate Pewaukee	.75
M. I. Shively, Anderson, O.	Best plate Rambo	1.50
T. S. Johnson, Gypsum, O.	2d best plate Rambo	.75
E. G. Cox, Bradrick, O.	Best plate Raule's Janet	1.50
T S. Johnson, Gypsum, O.	2d best plate Raule's Janet	.75
R G. Johnson, Gypsum, O.	Best plate Red Canada	1.50
T. S. Johnson, Gypsum, O.	2d best plate Red Canada	.75
R G. Johnson, Gypsum, O.	Best plate Rhode Island Greening	1.50
T. S. Johnson, Gypsum, O.	2d best plate R. I. Greening	.75
E. G. Cox, Bradrick, O.	Best plate Rome Beauty	1.50
J. C. Vergon, Delaware, O.	2d best plate Rome Beauty	.75
E. G. Cox, Bradrick, O.	Best plate Roxbury Russet	1.50
T S. Johnson, Gypsum, O.	2d best plate Roxbury Russet	.75
R. G. Johnson, Gypsum, O.	Best plate Seek-no-farther	1.50
Ava Main, Delaware, O.	2d best plate Seek-no-farther	.75
J. C. Bear, Dayton, O.	Best plate Smith's Cider	1.50
M. I. Shively, Anderson, O.	2d best plate Smith's Cider	.75
E. G. Stockman, Prospect, O.	Best plate Smoke House	1.50
J. C. Bear, Dayton, O.	2d best plate Smoke House	.75
W. H. West, Chillicothe, O.	Best plate Spitzenberg Esopus	1.50
Mrs. O. C. Stockman, Prospect, O.	Best plate Spitzenberg Kaighn	1.50
W. H. West, Chillicothe, O.	2d best plate Spitzenberg Kaighn	.75

HORTICULTURAL PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Winter Apples—Continued.		
E. G. Cox, Bradrick, O.	Best plate Stark	1.50
J. C. Vergon, Delaware, O.	2d best plate Stark	.75
E. G. Stockman, Prospect, O.	Best plate Sweet Wine Sap	1.50
Mrs. O. C. Stockman, Prospect, O.	Best plate Talman Sweet	1.50
E. G. Stockman, Prospect, O.	2d best plate Talman Sweet	.75
M. I. Shively, Anderson, O.	Best plate Wagener	1.50
E. G. Cox, Bradrick, O.	2d best plate Wagener	.75
T. S. Johnson, Gypsum, O.	Best plate White Pippin	1.50
E. G. Stockman, Prospect, O.	2d best plate White Pippin	.75
Same	Best plate Willow Twig	1.50
E. G. Cox, Bradrick, O.	Best plate Wine Sap	1.50
J. C. Bear, Dayton, O.	2d best plate Wine Sap	.75
E. G. Cox, Bradrick, O.	Best plate York Imperial	1.50
J. C. Bear, Dayton, O.	2d best plate York Imperial	.75
Crab Apples.		
Emmet V Rhoads, St. Paris, O.	Best twelve specimens Hughes Va.	1.50
E. G. Stockman, Prospect, O.	2d best twelve specimens Hughes Va.	.75
Mrs. O. C. Stockman, Prospect, O.	Best twelve specimens Hyslop	1.50
J. C. Vergon, Delaware, O.	2d best twelve specimens Hyslop	.75
Same	Best twelve specimens Transcendent	1.50
E. G. Stockman, Prospect, O.	2d best tweleve specimens Transcendent	.75
Mrs. O. C. Stockman, Prospect, O.	Best display	3.00
E. G. Stockman, Prospect, O.	2d best display	2.00
Peaches.		
T. S. Johnson, Gypsum, O.	Best 6 varieties green fleshed or white	3.00
W. H. West, Chillicothe, O.	2d best 6 vart's green fleshed or white	2.00
T. S. Johnson, Gypsum, O.	Best six varieties yellow	3.00
H. P. Dowler, Marchmont, O.	2d best six varieties yellow	2.00
T. S. Johnson, Gypsum, O.	Best display	6.00
H. P. Dowler, Marchmont, O.	2d best display	4.00
Jno. P. Streeper, Columbus, O.	Best new seedling or variety	2.00
T. S. Johnson, Gypsum, O.	2d best new seedling or variety	1.00
H. P. Dowler, Marchmont, O.	Best plate Beers' Smock	2.00
E. G. Cox, Bradrick, O.	2d best plate Beers' Smock	1.00
T. S. Johnson, Gypsum, O.	Best plate Briner's Yellow	2.00
R. G. Johnson, Gypsum, O.	2d best plate Briner's Yellow	1.00
Same	Best plate Chair's Choice	2.00
T. S. Johnson, Gypsum, O.	2d best plate Chair's Choice	1.00
M. I. Shively, Anderson, O.	Best plate Champion	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Champion	1.00
R. G. Johnson, Gypsum, O.	Best plate Crawford's Early	2.00
T. S. Johnson, Gypsum, O.	2d best plate Crawford's Early	1.00
Same	Best plate Crawford's Late	2.00
R. G. Johnson, Gypsum, O.	2d bst plate Crawford's Late	1.00
W. H. West, Chillicothe, O.	Best plate Crosby	2.00
E. G. Cox, Bradrick, O.	2d best plate Crosby	1.00
M. I. Shively, Anderson, O.	Best plate Diamond	2.00
E. G. Cox, Bradrick, O.	2d best plate Diamond	1.00
R. G. Johnson, Gypsum, O.	Best plate Early Rivers	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Early Rivers	1.00
Same	Best plate Early Toledo	2.00
C. W. Counter, North Toledo, O.	2d best plate Early Toledo	1.00
T. S. Johnson, Gypsum, O.	Best plate Elberta	2.00
R. G. Johnson, Gypsum, O.	2d best plate Elberta	1.00
T. S. Johnson, Gypsum, O.	Best plate Emma	2.00
R. G. Johnson, Gypsum, O.	2d best plate Emma	1.00
Same	Best plate Foster	2.00
T. S. Johnson, Gypsum, O.	2d best plate Foster	1.00
Same	Best plate Hill's Chili	2.00
R. G. Johnson, Gypsum, O.	2d best plate Hill's Chili	1.00
R. G. Johnson, Gypsum, O.	Best plate Jacques' Rareripe	2.00
T. S. Johnson, Gypsum, O.	2d best plate Jacques' Rareripe	1.00
Same	Best plate Kalamazoo	2.00
R. G. Johnson, Gypsum, O.	Best plate Lemon Free	2.00
T. S. Johnson, Gypsum, O.	2d best plate Lemon Free	1.00
R. G. Johnson, Gypsum, O.	Best plate Lemon Cling	2.00
T. S. Johnson, Gypsum, O.	2d best plate Lemon Cling	1.00
Same	Best plate Lewis' Seedling	2.00
R. G. Johnson, Gypsum, O.	2d best plate Lewis' Seedling	1.00
M. I. Shively, Anderson, O.	Best plate Morris' White	2.00
T. S. Johnson, Gypsum, O.	2d best plate Morris' White	1.00

HORTICULTURAL PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Peaches—Continued.		
T. S. Johnson, Gypsum, O	Best plate Mountain Rose	2.00
R. G. Johnson, Gypsum, O	2d best plate Mountain Rose	1.00
T. S. Johnson, Gypsum, O	Best plate Old Mixon Cling	2.00
R. G. Johnson, Gypsum, O	2d best plate Old Mixon Cling	1.00
T. S. Johnson, Gypsum, O	Best plate Old Mixon Free	2.00
C. W. Counter, North Toledo, O	2d best plate Old Mixon Free	1.00
T. S. Johnson, Gypsum, O	Best plate President	2.00
Same	Best plate Red Cheeked Melocoton	2.00
R. G. Johnson, Gypsum, O	2d best plate Red Cheeked Molocoton	1.00
H. P. Dowler, Marchmont, O	Best plate Salway	2.00
T. S. Johnson, Gypsum, O	2d best plate Salway	1.00
H. P. Dowler, Marchmont, O	Best plate Smock Free	2.00
E. G. Cox, Bradrick, O	2d best plate Smock Free	1.00
T. S. Johnson, Gypsum, O	Best plate Stephen's Rareripe	2.00
R. G. Johnson, Gypsum, O	2d best plate Stephens' Rareripe	1.00
W. H. West, Chillicothe, O	Best plate Stump the World	2.00
Jno. R. Hurst, Chillicothe, O	2d best plate Stump the World	1.00
R. G. Johnson, Gypsum, O	Best plate Wheatland	2.00
T. S. Johnson, Gypsum, O	2d best plate Wheatland	1.00
Quinces.		
E. G. Cox, Bradrick, O	Best plate Champion	2.00
Emmet V. Rhoads, St. Paris, O	2d best plate Champion	1.00
E. G. Cox, Bradrick, O	Best plate Meech	2.00
Emmet V. Rhoads, St. Paris, O	Best plate Rea's Mammoth	2.00
J. C. Bear, Dayton, O	2d best plate Rea's Mammoth	1.00
Emmet V. Rhoads, St. Paris, O	Best plate Orange	2.00
E. G. Cox, Bradrick, O	2d best plate Orange	1.00
Emmet V. Rhoads, St. Paris, O	Best peck of quinces	3.00
Plums.		
R. G. Johnson, Gypsum, O	Best plate Bradshaw	2.00
E. M. Woodard, Kirtland, O	2d best plate Bradshaw	1.00
C. W. Counter, North Toledo, O	Best plate Burbank	2.00
W. W. Farnsworth, Waterville, O	2d best plate Burbank	1.00
R. G. Johnson, Gypsum, O	Best plate Coe's Golden Drop	2.00
W. W. Farnsworth, Waterville, O	2d best plate Coe's Golden Drop	1.00
R. G. Johnson, Gypsum, O	Best plate Duane's Purple	2.00
T. S. Johnson, Gypsum, O	2d best plate Duane's Purple	1.00
E. G. Cox, Bradrick, O	Best plate Fellemberg	2.00
W. W. Farnsworth, Waterville, O	2d best plate Fellemberg	1.00
C. W. Counter, North Toledo, O	Best plate French Damson	2.00
W. W. Farnsworth, Waterville, O	2d best plate French Damson	1.00
E. G. Cox, Bradrick, O	Best plate Grand Duke	2.00
C. W. Counter, North Toledo, O	2d best plate Grand Duke	1.00
Same	Best plate Genie	2.00
W. W. Farnsworth, Waterville, O	2d best plate Genie	1.00
E. G. Cox, Bradrick, O	Best plate German Prune	2.00
W. W. Farnsworth, Waterville, O	2d best plate German Prune	1.00
Same	Best plate Hale	2.00
C. W. Counter, North Toledo, O	2d best plate Hale	1.00
Same	Best plate Imperial Gage	2.00
E. G. Cox, Bradrick, O	2d best plate Imperial Gage	1.00
R. G. Johnson, Gypsum, O	Best plate Lombard	2.00
W. H. West, Chillicothe, O	2d best plate Lombard	1.00
E. G. Cox, Bradrick, O	Best plate Monarch	2.00
W. W. Farnsworth, Waterville, O	2d best plate Monarch	1.00
C. W. Counter, North Toledo, O	Best plate Moore's Arctic	2.00
W. W. Farnsworth, Waterville, O	2d best plate Moore's Arctic	1.00
R. G. Johnson, Gypsum, O	Best plate Murdy	2.00
E. G. Cox, Bradrick, O	2d best plate Murdy	1.00
W. W. Farnsworth, Waterville, O	Best plate Newman	2.00
C. W. Counter, North Toledo, O	2d best plate Newman	1.00
E. G. Cox, Bradrick, O	Best plate Pond's Seedling	2.00
Jno. R. Hurst, Chillicothe, O	2d best plate Pond's Seedling	1.00
R. G. Johnson, Gypsum, O	Best plate Reine Claude	2.00
E. G. Cox, Bradrick, O	2d best plate Reine Claude	1.00
J. C. Bear, Dayton, O	Best plate Richland	2.00
C. W. Counter, North Toledo, O	2d best plate Richland	1.00
Same	Best plate Shipper's Pride	2.00
W. W. Farnsworth, Waterville, O	2d best plate Shipper's Pride	1.00
E. M. Woodard, Kirtland, O	Best plate Shropshire	2.00
T. S. Johnson, Gypsum, O	2d best plate Shropshire	1.00

HORTICULTURAL PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Plums—Continued.		
R. G. Johnson, Gypsum, O.	Best plate Yellow Egg	2.00
T. S. Johnson, Gypsum, O.	2d best plate Yellow Egg	1.00
W. W. Farnsworth, Waterville, O.	Best display ten varieties	6.00
T. S. Johnson, Gypsum, O.	2d best display ten varieties	4.00
Same	Best display five varieties	3.00
E. G. Cox, Bradrick, O.	2d best display five varieties	2.00
Pears.		
W. W. Farnsworth, Waterville, O.	Best six varieties, summer and fall	4.00
E. G. Cox, Bradrick, O.	2d best display 6 varieties summer and fall	2.00
C. W. Counter, North Toledo, O.	Best ten varieties summer, fall and winter.	5.00
W. W. Farnsworth, Waterville, O.	2d best ten varieties, summer, fall and winter	2.50
C. W. Counter, North Toledo, O.	Best three varieties, large	3.00
W. W. Farnsworth, Waterville, O.	2d best three varieties, large	1.50
Emmet V. Rhoads, St. Paris, O.	Best new variety	2.00
C. W. Counter, North Toledo, O.	2d best new variety	1.00
Emmet V. Rhoads, St. Paris, O.	Best variety desert	2.00
C. W. Counter, North Toledo, O.	2d best variety desert	1.00
W. W. Farnsworth, Waterville, O.	Best display	10.00
C. W. Counter, North Toledo, O.	2d best display	5.00
Same	Best plate Anjou	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Anjou	1.00
C. W. Counter, North Toledo, O.	Best plate Bartlett	2.00
R. G. Johnson, Gypsum, O.	2d best plate Bartlett	1.00
E. G. Cox, Bradrick, O.	Best plate Beurre Clairgeau	2.00
C. W. Counter, North Toledo, O.	2d best plate Beurre Clairgeau	1.00
T. S. Johnson, Gypsum, O.	Best plate Clapp's Favorite	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Clapp's Favorite	1.00
C. W. Counter, North Toledo, O.	Best plate Doynne Bousoc	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Doynne Bousoc	1.00
E. G. Cox, Bradrick, O.	Best plate Duchess	2.00
W. H. West, Chillicothe, O.	2d best plate Duchess	1.00
C. W. Counter, North Toledo, O.	Best plate Flemish Beauty	2.00
E. M. Woodard, Kirtland, O.	2d best plate Flemish Beauty	1.00
C. W. Counter, North Toledo, O.	Best plate Frederick Clapp	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Frederick Clapp	1.00
Emmet V. Rhoads, St. Paris, O.	Best plate Howell	2.00
W. H. West, Chillicothe, O.	2d best plate Howell	1.00
E. G. Cox, Bradrick, O.	Best plate Idaho	2.00
G. W. Lawson, Centerville, O.	Best plate Keiffer	2.00
J. C. Bear, Dayton, O.	2d best plate Keiffer	1.00
C. W. Counter, North Toledo, O.	Best plate Kirtland	2.00
R. G. Johnson, Gypsum, O.	2d best plate Kirtland	1.00
G. W. Lawson, Centerville, O.	Best plate Lawrence	2.00
C. W. Counter, North Toledo, O.	2d best plate Lawrence	1.00
Emmet V. Rhoads, St. Paris, O.	Best plate Louis Bonne	2.00
T. S. Johnson, Gypsum, O.	2d best plate Louis Bonne	1.00
C. W. Counter, North Toledo, O.	Best plate Onondaga	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Onondaga	1.00
Same	Best plate President	2.00
C. W. Counter, North Toledo, O.	2d best plate President	1.00
E. M. Woodard, Kirtland, O.	Best plate Seckel	2.00
Emmet V. Rhoads, St. Paris, O.	2d best plate Seckel	1.00
J. C. Bear, Dayton, O.	Best plate Sheldon	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Sheldon	1.00
E. G. Cox, Bradrick, O.	Best plate Vicar	2.00
W. W. Farnsworth, Waterville, O.	2d best plate Vicar	1.00
Emmet V Rhoads, St. Paris, O.	Best Winter Nelis	2.00
W. W. Farnsworth, Waterville, O.	2d best Winter Nelis	1.00

HORTICULTURAL PRODUCTS — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Grapes.		
W. H. West, Chillicothe, O.	Best twenty varieties	10.00
E. M. Woodard, Kirtland, O.	2d best twenty varieties	6.00
W. H. West, Chillicothe, O.	Best ten varieties	5.00
E. M. Woodard, Kirtland, O.	2d best ten varieties	3.00
Same	Best six varieties	4.00
W. H. West, Chillicothe, O.	2d best six varieties	2.00
E. M. Woodard, Kirtland, O.	Best three varieties	3.00
W. H. West, Chillicothe, O.	2d best three varieties	1.50
Jno. P. Streeper, Columbus, O.	Best new Seedling	3.00
W. H. West, Chillicothe, O.	Best three plates early table grapes	3.00
E. M. Woodard, Kirtland, O.	2d best three plates early table grapes	1.50
Same	Best three plates late table grapes	3.00
W. H. West, Chillicothe, O.	2d best three plates late table grapes	1.50
Same	Best plate Agawam	2.00
E. M. Woodard, Kirtland, O.	2d best plate Agawam	1.00
Same	Best plate Alice	2.00
Same	Best plate Aminia	2.00
Same	2d best plate Aminia	1.00
Same	Best plate Bell	2.00
Same	2d best plate Bell	1.00
Same	Best plate Beacon	2.00
Same	2d best plate Beacon	1.00
W. H. West, Chillicothe, O.	Best plate Brighton	2.00
E. M. Woodard, Kirtland, O.	2d best plate Brighton	1.00
Same	Best plate Brilliant	2.00
Same	2d best plate Brilliant	1.00
G. W. Lawson, Centerville, O.	Best plate Campbell's Early	2.00
John P. Streeper, Columbus, O.	2d best plate Campbell's Early	1.00
W. H. West, Chillicothe, O.	Best plate Catawba	2.00
E. M. Woodard, Kirtland, O.	2d best plate Catawba	1.00
W. H. West, Chillicothe, O.	Best plate Concord	2.00
E. M. Woodard, Kirtland, O.	2d best plate Concord	1.00
Same	Best plate Delaware	2.00
Same	2d best plate Delaware	1.00
Cary W. Montgomery, Newark, O.	Best plate Duchess	2.00
E. M. Woodard, Kirtland, O.	2d best plate Duchess	1.00
Same	Best plate Early Ohio	2.00
Same	2d best plate Early Ohio	1.00
Same	Best plate Eaton	2.00
Same	2d best plate Eaton	1.00
W. H. West, Chillicothe, O.	Best plate Empire State	2.00
E. M. Woodard, Kirtland, O.	2d best plate Empire State	1.00
Same	Best plate Gaertner	2.00
Same	2d best plate Gaertner	1.00
Same	Best plate Geneva	2.00
Same	2d best plate Geneva	1.00
Same	Best plate Green Mountain	2.00
Same	2d best plate Green Mountain	1.00
Same	Best plate Herbert	2.00
Same	2d best plate Herbert	1.00
Same	Best plate Ives	2.00
Same	2d best plate Ives	1.00
Same	Best plate Jefferson	2.00
W. H. West, Chillicothe, O.	Best plate Lady Washington	2.00
E. M. Woodard, Kirtland, O.	2d best plate Lady Washington	1.00
Same	Best plate Lindley	2.00
Same	2d best plate Lindley	1.00
Same	Best plate Massasoit	2.00
Same	2d best plate Massasoit	1.00
Same	Best plate Montefiore	2.00
Same	2d best plate Montefiore	1.00
G. W. Lawson, Centerville, O.	Best plate Moore's Diamond	2.00
Mrs. Jane Spellman, Granville, O.	2d best plate Moore's Diamond	1.00
G. W. Lawson, Centerville, O.	Best plate Moore's Early	2.00
E. M. Woodard, Kirtland, O.	2d best plate Moore's Early	1.00
Same	Best plate Moyer	2.00
Same	2d best plate Moyer	1.00
W. H. West, Chillicothe, O.	Best plate Mo. Reisling	2.00
E. M. Woodard, Kirtland, O.	2d best plate Mo. Reisling	1.00
Same	Best plate Nectar	2.00
Same	2d best plate Nectar	1.00
G. W. Lawson, Centerville, O.	Best plate Niagara	2.00
E. M. Woodard, Kirtland, O.	2d best plate Niagara	1.00
Same	Best plate Norton's Virginia	2.00
W. H. West, Chillicothe, O.	2d best plate Norton's Virginia	1.00

HORTICULTURAL PRODUCTS—Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
Grapes—Continued.		
E. M. Woodard, Kirtland, O.	Best plate Pocklington	2.00
J. C. Bear, Dayton, O.	2d best plate Pocklington	1.00
E. M. Woodard, Kirtland, O.	Best plate R. B. Hayes	2.00
Same	2d best plate R. B. Hayes	1.00
Same	Best plate Salem	2.00
Same	2d best plate Salem	1.00
Same	Best plate Ulster	2.00
Same	2d best plate Ulster	1.00
W. H. West, Chillicothe, O.	Best plate Wilder	2.00
E. M. Woodard, Kirtland, O.	2d best plate Wilder	1.00
G. W. Lawson, Centerville, O.	Best plate Woodruff's Red	2.00
E. M. Woodard, Kirtland, O.	2d best plate Woodruff's Red	1.00
Same	Best plate Worden	2.00
George Stroehle, Chillicothe, O.	2d best plate Worden	1.00
County Fruits.		
C. W. Counter, North Toledo, O.	Best county exhibit of 100 plates of fruit	75.00
T. S. Johnson, Gypsum, O.	2d best county exhibit of 100 plates of fruit	60.00
E. M. Woodard, Kirtland, O.	3d best county exhibit of 100 plates of fruit	50.00
W. W. Farnsworth, Waterville, O.	4th best county exhibit of 100 plates of fruit	40.00
E. G. Stockman, Prospect, O.	5th best county exhibit of 100 plates of fruit	30.00
L. M. Gregg, Dayton, O.	6th best county exhibit of 100 plates of fruit	20.00

PLANTS AND FLOWERS.

Owner's Name and Postoffice.	Name of Article.	Amt.
Plants and Flowers — Professional List.		
E. L. Charles, Columbus, O.	Best collection of plants	25.00
Same	Best collection of palms	15.00
Same	Best collection of ferns & lycopodiums	10.00
Same	Best collection of Rex and flowering Begonias	10.00
T. C. Breece, West Berlin, O.	Best collection of cannas	10.00
E. L. Charles, Columbus, O.	2d best collection of cannas	5.00
Same	Best collection of crotons	10.00
T. C. Breece, West Berlin, O.	Best collection of geraniums	8.00
E. L. Charles, Columbus, O.	2d best collection of geraniums	4.00
Same	Best collection of asters	8.00
T. C. Breece, West Berlin, O.	Best pair of vases filled with plants	8.00
E. L. Charles, Columbus, O.	2d best pair of vases filled with plants	4.00
Same	Best six baskets filled with plants	8.00
Same	Best collection of variegated plants	10.00
Cut Flowers—Florists' List.		
E. L. Charles, Columbus, O.	Best pair hand bouquets	8.00
T. C. Breece, West Berlin, O.	2d best pair hand bouquets	4.00
E. L. Charles, Columbus, O.	Best handle basket	8.00
Same	Best display of floral designs	25.00
Same	Best single floral design	10.00
Same	Best display cut roses	10.00
Same	Best display cut dahlias	6.00
Cushman Gladiolus Co., Euclid, O.	2d best display dahlias	3.00
Same	Best display cut gladioli	10.00
E. L. Charles, Columbus, O.	2d best display cut gladioli	5.00
Same	Best display of cut carnations	6.00
Same	Best display of cut asters	6.00
Same	Best collection of cut flowers	12.00
Plants and Flowers—Amateur List.		
Minnie E. Bieber, Delaware, O.	Best collection of plants	15.00
Mrs. Mary A. Perry, Columbus, O.	2d best collection of plants	8.00
Same	Best collection of variegated plants	8.00
Minnie E. Bieber, Delaware, O.	2d best collection of variegated plants	4.00
Mrs. Mary A. Perry, Columbus, O.	Best collection of begonias	8.00
Minnie E. Bieber, Delaware, O.	2d best collection of begonias	4.00
Susie E. Perry, Columbus, O.	Best collection of cannas	5.00
Mrs. Ella Zimmer, Zimmer, O.	Best collection of aloes and cacti	5.00
N. Anna Long, Columbus, O.	2d best collection of aloes and cacti	3.00
Mrs. Mary A. Perry, Columbus, O.	Best colection of geraniums	5.00
N. Anna Long, Columbus, O.	Best collection of ferns & lycopodiums	5.00
Minnie E. Bieber, Delaware, O.	2d best collection of ferns and lycopodiums	3.00
Miss Flora C. Zimmer, Zimmer, O.	Best collection of plants on trellises	3.00
N. Anna Long, Columbus, O.	Best six hanging baskets of plants	5.00
Minnie E. Bieber, Delaware, O.	Best single rustic baskets	3.00
N. Anna Long, Columbus, O.	2d best single rustic baskets	1.00

PLANTS AND FLOWERS—Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
Cut Flowers and Floral Designs.		
Sarah B. Franklin, Chillicothe, O.	Best collection of dahlias	3.00
Same	Best collection of roses	3.00
N. Anna Long, Columbus, O.	2d best collection of roses	2.00
Clara Bieber, Delaware, O.	Best collection of verbenas	3.00
Mrs.Harvilla Elliott, Zanesville, O.	2d best collection of verbenas	2.00
Sarah B. Franklin, Chillicothe, O.	Best display of asters	3.00
Clara Bieber, Delaware, O.	2d best display of asters	2.00
Susie E. Perry, Columbus, O.	Best display of geraniums	2.00
Mrs.Harvilla Elliott, Zanesville, O.	2d best display of geraniums	1.00
Same	Best display of carnations	3.00
N. Anna Long, Columbus, O.	2d best display of carnations	2.00
Same	Best display of gladioli	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best display of gladioli	1.00
N. Anna Long, Columbus, O.	Best display of coxcombs and amaranths	2.00
Clara Bieber, Delaware, O.	2d best display of coxcombs and amaranths	1.00
Same	Best display of double zinnias	2.00
Sarah B. Franklin, Chillicothe, O.	2d best display of double zinnias	1.00
Susie E. Perry, Columbus, O.	Best display of cut flowers	5.00
N. Anna Long, Columbus, O.	2d best display of cut flowers	3.00
Ava Main, Delaware, O.	Best pair of bouquets	3.00
Mrs. Harvilla Elliott, Zanesville, O.	2d best pair of bouquets	2.00

TENTH DEPARTMENT.

WOMAN'S WORK—Samuel Taylor, Member in Charge.

Owner's Name and Postoffice.	Name of Article.	Amt.
Household Fabrics.		
Miss Mattie Hall, Lexington, Ky.	Best silk quilt (crazy)	3.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best silk quilt (crazy)	1.00
Mrs. Thomas Poole, Reynoldsburg, O.	Best silk quilt (not crazy)	3.00
Miss Anna Miller, Quincy, Ill.	2d best silk quilt (not crazy)	1.00
Annie Koerner, Alton, O.	Best velvet quilt (large)	3.00
Miss Mattie Hall, Lexington, Ky.	2d best silk quilt (large)	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best worsted quilt	2.00
Miss Anna Miller, Quincy, Ill.	Best log cabin quilt	2.00
Mrs. H. L. Lanum, Columbus, O.	2d best log cabin quilt	1.00
Mrs. Thomas Poole, Reynoldsburg, O.	Best white quilt	2.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best white quilt	1.00
Miss Anna Miller, Quincy, Ill.	Best patchwork quilt	2.00
Mrs. Thomas Poole, Reynoldsburg, O.	2d best patchwork quilt	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best cradle quilt	1.00
Miss Anna Miller, Quincy, Ill.	2d best cradle quilt	.50
Mrs. L. E. Rockwell, Quincy, Ill.	Best silk comfort	3.00
Mrs. Thomas Poole, Reynoldsburg, O.	2d best silk comfort	1.00
Mrs. A. C. Messenger, Xenia, O.	Best cotton comfort	2.00
Mrs. E. Buck, Lockland, O.	2d best cotton comfort	1.00
Miss Anna Miller, Quincy, O.	Best worsted comfort	2.00
Mrs. Effie Cunningham, Newark, O.	2d best worsted comfort	1.00
Mrs. W. F. Crickard, Delaware, O.	Best hearth rug (rag)	1.00
Miss Anna Miller, Quincy, Ill.	Best hearth rug (yarn)	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best hearth rug (yarn)	.50
Miss Anna Miller, Quincy, Ill.	Best hearth rug (silk)	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best rag carpet, ten yards	3.00
Mrs. Thomas Poole, Reynoldsburg, O.	2d best rag carpet, ten yards	2.00
Mrs. L. P. Wannan, Norwood, O.	Best specimen of darning	1.00
Knitting.		
Mrs. L. E. Rockwell, Quincy, Ill.	Best pair woolen stockings	1.00
Mrs. H. Bieber, Delaware, O.	2d best pair woolen stockings	.50
Mrs. L. E. Rockwell, Quincy, Ill.	Best pair woolen socks	1.00
Mrs. Thomas Poole, Reynoldsburg, O.	2d best pair woolen socks	.50
Mrs. E. Buck, Lockland, O.	Best pair woolen baby socks	1.00
Miss Ida Andes, Marion, O.	2d best pair woolen baby socks	.50
A. L. Perry, Lewis Center, O.	Best pair linen stockings	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best pair linen stockings	.50
Same	Best pair cotton stockings	1.00
Mrs. H. Bieber, Delaware, O.	2d best pair cotton stockings	.50
Mrs. M. B. Clutter, Alexandria, O.	Best bed spread	2.00
Mrs. J. Bailey, Columbus, O.	2d best bed spread	1.00
Mrs. H. Bieber, Delaware, O.	Best pair woolen mittens	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best pair woolen mittens	.50
Same	Best pair silk stockings	1.00
N. J. Glenn, Cambridge, O.	2d best pair silk stockings	.50
Mrs. Marian Morris, Washington C. H., O.	Best pair silk socks	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best pair silk socks	.50
Miss Anna Miller, Quincy, Ill.	Best pair silk mittens	1.00
Mrs. E. Buck, Lockland, O.	2d best pair silk mittens	.50
Elizabeth Leigh, Groveport, O.	Best woolen corset cover	1.00
Miss Ida Andes, Marion, O.	2d best woolen corset cover	.50
Miss Anna Miller, Quincy, Ill.	Best pair slippers	1.00
Miss Anna Bond, Columbus, O.	2d best pair slippers	.50
Mrs. Marian Morris, Washington C. H., O.	Best pair cotton socks	1.00
Mrs. Thos. Poole, Reynoldsburg, O.	2d best pair cotton socks	.50
Miss Mattie Hall, Lexington, Ky.	Best cotton lace	1.00
Mrs. L. K. Roney, Troy, O.	2d best cotton lace	.50
Miss Anna Miller, Quincy, Ill.	Best woolen lace	1.00
Miss Mattie Hall, Lexington, Ky.	2d best woolen lace	.50
Mrs. Hattie Bolander, Marion, O.	Best infant's sacque	1.00
Miss Ida Andes, Marion, O.	2d best infant's sacque	.50
Mrs. E. Buck, Lockland, O.	Best infant's hood	1.00
Miss Anna Miller, Quincy, Ill.	Best lady's knit skirt	1.00
Mrs. E. Buck, Lockland, O.	2d best lady's knit skirt	.50

WOMAN'S WORK — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Needle Work — Hand-made.		
Mrs. Gamble Shields, Marysville, O.	Best fancy sheet	2.00
Mrs. C. H. Rudolph, Massillon, O.	2d best fancy sheet	1.00
Mrs. W. F. Crickard, Delaware, O.	Best pair of pillow cases	2.00
Mrs. C. H. Rudolph, Massillon, O.	2d best pair of pillow cases	1.00
Mrs. Maggie Rheinhart, Marion, O.	Best chemise	2.00
Mrs. Clark Kinney, Mt. Gilead, O.	2d best chemise	1.00
Miss Lulu Andes, Marion, O.	Best night dress	2.00
Mary V. Smucker, Newark, O.	2d best night dress	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best fancy apron	1.00
Mrs. W. F. Crickard, Delaware, O.	2d best fancy apron	.50
Miss L. A. Howe, Forest, O.	Best infant's robe	2.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best infant's robe	1.00
Lyda Crickard, Delaware, O.	Best gent's shirt	2.00
Mrs. M. W. Marshall, Washington C. H., O.	2d best gent's shirt	1.00
Mrs. O. A. Spahr, Xenia, O.	Best sofa pillow	1.00
F. O. Brown, Urichsville, O.	2d best sofa pillow	.50
Machine Sewing — Amateur.		
Mrs. J. A. Beveridge, Xenia, O.	Best suit lady's underwear	2.00
Miss Anna Miller, Quincy, Ill.	2d best suit lady's underwear	1.00
Mrs. L. P. Wannan, Norwood, O.	Best night shirt	1.00
Mrs. E. Booth, Marion, O.	2d best night shirt	.50
Mrs. L. P. Wannan, Norwood, O.	Best fancy apron	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best fancy apron	.50
Miss M. Johnson, Dayton, O.	Best sunbonnet	1.00
Mrs. E. Buck, Lockland, O.	2d best sunbonnet	.50
Mary V. Smucker, Newark, O.	Best dress for lady	2.00
Mrs. L. P. Wannan, Norwood, O.	2d best dress for lady	1.00
Same	Best night dress	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best night dress	.50
Lyda Crickard, Delaware, O.	Best skirt	2.00
Mrs. L. P. Wannan, Norwood, O.	2d best skirt	1.00
Same	Best corset cover	1.00
Miss M. Johnson, Dayton, O.	2d best corset cover	.50
Mrs. L. E. Rockwell, Quincy, Ill.	Best display	3.00
Delft Embroidery.		
Julia Gill, Columbus, O.	Best six doylies	2.00
Miss Anna Bond, Columbus, O.	2d best six doylies	1.00
Miss Mattie Hall, Lexington, Ky.	Best center piece	2.00
F. O. Brown, Urichsville, O.	2d best center piece	1.00
Miss Mattie Hall, Lexington, Ky.	Best tray cloth	1.00
Mrs. A. G. Trimble, Marion, O.	2d best tray cloth	.50
Mrs. Hattie Bolander, Marion, O.	Best pin cushion	1.00
Julia Gill, Columbus, O.	2d best pin cushion	.50
Mrs. Hattie Bolander, Marion, O.	2d best pin cushion	.50
Miss Anna Bond, Columbus, O.	Best display	3.00
Julia Gill, Columbus, O.	2d best display	1.00
Old Ladies' Class		
Mrs. L. E. Rockwell, Quincy, Ill.	Best embroidered table cover	2.00
Mrs. S. Calkins, Quincy, Ill.	2d best embroidered table cover	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best embroidered skirt	1.00
Mrs. S. Calkins, Quincy, Ill.	2d best embroidered skirt	.50
Mrs. Chas. S. Prosser, Columbus, O.	2d best embroidered picture	.50
Miss Anna Andes, Marion, O.	Best embroidered American flag	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best pair pillow shams	1.00
Mrs. E. Booth, Marion, O.	2d best pair pillow shams	.50
Mrs. Chas. S. Prosser, Columbus, O.	2d best bed spread	1.00
Mrs. Hattie Bolander, Marion, O.	Best chair cushion	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best chair cushion	.50
Mrs. S. Calkins, Quincy, Ill.	Best fancy quilt	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best fancy quilt	.50
Same	Best lady's dress	2.00
Mrs. S. Calkins, Quincy, Ill.	Best child's dress	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best child's dress	.50
Mrs. E. Booth, Marion, O.	Best suit of lady's underwear	1.00
Mrs. S. Calkins, Quincy, Ill.	2d best suit of lady's underwear	.50
Mrs. Jane Holdsworth, Penn Yan, N. Y.	Best table mats	1.00
Mrs. Anna Andes, Marion, O.	Best lamp mat	.50
Mrs. L. E. Rockwell, Quincy, Ill.	Best tidy	.50

WOMAN'S WORK — Continued.

Name and Postoffice.	Name of Article.	Amt.
Old Ladies' Class Continued.		
[illegible] Quincy, Ill.	Best silk knit stockings	1.00
Same	Best woolen knit stockings	1.00
Same	Best silk knit socks	.50
Mrs. A. [illegible], Lewis Center, O.	Best woolen knit socks	.50
Mrs. F. Booth, Marion, O.	Best fancy apron	1.00
Same	Best sunbonnet	.50
Children's Class.		
Belle Higgins, Columbus, O.	Best outline embroidery	1.00
Miss Helen Rochester, Quincy, Ill.	2d best outline embroidery	.50
Same	Best cross-stitch work	1.00
Deborah Rhinehart, Marion, O.	2d best cross-stitch work	.50
Same	Best drawn thread work	1.00
Reba Bolander, Marion, O.	2d best drawn thread work	.50
Same	Best crochet work	1.00
Deborah Rhinehart, Marion, O.	2d best crochet work	.50
Miss Helen Rochester, Quincy, Ill.	Best plain sewing	1.00
Reba Bolander, Marion, O.	2d best plain sewing	.50
Deborah Rhinehart, Marion, O.	Best knitting	1.00
Miss Helen Rochester, Quincy, Ill.	2d best knitting	.50
Same	Best silk embroidery	1.00
Deborah Rhinehart, Marion, O.	2d best silk embroidery	.50
Lace and Tatting Work.		
Mrs. J. M. Coe, Mt. Gilead, O.	Best point lace handkerchief	3.00
Mary V. Smucker, Newark, O.	2d best point lace handkerchief	2.00
Mrs. J. M. Coe, Mt. Gilead, O.	Best point lace collar	2.00
Same	2d best point lace collar	1.00
Same	Best point lace infant's cap	2.00
Mrs. L. P. Wannan, Norwood, O.	2d best point lace infant's cap	1.00
Mrs. J. M. Coe, Mt. Gilead, O.	Best point lace specimen	2.00
Mrs. Fred Balth, Bucyrus, O.	2d best point lace specimen	1.00
Mrs. C. S. David, Marysville, O.	Best Battenburg dresser cover	2.00
Mary V. Smucker, Newark, O.	2d best Battenburg dresser cover	1.00
Same	Best Battenburg lace specimen	2.00
Mrs. L. K Roney, Troy, O.	2d best Battenburg lace specimen	1.00
Mary V. Smucker, Newark, O.	Best Battenburg table cover	2.00
Annie Koerner, Alton, O.	2d best Battenburg table cover	1.00
Miss Anna Bond, Columbus, O.	Best monogram in lace	2.00
Mrs. J. M. Coe, Mt. Gilead, O.	Best display of point lace	3.00
Miss Anna Bond, Columbus, O.	Best Marie Antoinette lace	2.00
Mrs. L. K. Roney, Troy, O.	Best tatting collar	2.00
Miss Anna Miller, Quincy, Ill.	Best tatting handkerchief	2.00
Mrs. A. M. Miller, Washington C. H., O.	2d best tatting handkerchief	1.00
Mrs. C. H. Rudolph, Massillon, O.	Best tatting specimen	2.00
Miss Anna Miller, Quincy, Ill.	2d best tatting specimen	1.00
Crochet Work.		
Miss Hattie Hall, Lexington, Ky.	Best bed spread	3.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best bed spread	2.00
Same	Best lace, cotton or linen	2.00
Miss Mattie Hall, Lexington, Ky.	2d best lace, cotton or linen	1.00
Mrs. L. F. Rockwell, Quincy, Ill.	Best lace, wool	2.00
Mrs. J. A Beveridge, Xenia, O.	2d best lace, wool	1.00
Mrs. Jennie Guthridge, Columbus, O.	Best shawl	2.00
Mrs. Fred Balth, Bucyrus, O.	2d best shawl	1.00
Miss Mattie Hall, Lexington, Ky.	Best infant's sacque	1.00
Mrs. Fred Barth, Bucyrus, O.	2d best infant's sacque	.50
Miss Anna Miller, Quincy, Ill.	Best fascinator	1.00
Mrs. E. Buck, Lockland, O.	2d best fascinator	.50
Mrs. Hattie Bolander, Marion, O.	Best toilet set	1.00
Miss Lulu Andes, Marion, O.	2d best toilet set	.50
Mrs. A. N. Whiting, Columbus, O.	Best table mats	1.00
Charlotte M. Harris, Springfield, O.	2d best table mats	.50
Miss M. Johnson, Dayton, O.	Best slippers	1.00
Lyda Crickard, Delaware, O.	2d best slippers	.50
Mrs. L. F. Rockwell, Quincy, Ill.	Best child's hood	1.00
Mrs. E. Buck, Lockland, O.	2d best child's hood	.50
Mrs. J. W. Clinger, Forest, O.	Best tidy	1.00
Mrs. Clara W. Gregg, Batavia, O.	2d best tidy	.50
Mrs. L. E. Rockwell, Quincy, Ill.	Best skirt	2.00
Mrs. Thos. Poole, Reynoldsburg, O.	2d best skirt	1.00

WOMAN'S WORK — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Crochet Work—Continued.		
Mrs. H. T. Rockey, Lancaster, O.	Best large Afghan	3.00
Miss Mattie Hall, Lexington, Ky.	2d best large Afghan	2.00
Mrs Thos. Poole, Reynoldsburg, O.	Best small Afghan	2.00
Mrs. U. J. Cover, Mt. Gilead, O.	2d best small Afghan	1.00
Miss Mattie Hall, Lexington, Ky.	Best display	3.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best display	2.00
Outline Embroidery.		
Mrs. Fred Baith, Bucyrus, O.	Best pair pillow cases	2.00
Miss M. Johnson, Dayton, O.	2d best pair pillow cases	1.00
Miss Mattie Hall, Lexington, Ky.	Best table cover	2.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best table cover	1.00
Miss Mattie Hall, Lexington, Ky.	Best sofa pillow	2.00
Miss M. Johnson, Dayton, O.	2d best sofa pillow	1.00
Miss Mattie Hall, Lexington, Ky.	Best lunch cloth	2.00
Mrs. A. G. Trimble, Marion, O.	2d best lunch cloth	1.00
Mrs. L. E. Rockwell, Quincy, Ill	2d best tidy	.50
Miss Mattie Hall, Lexington, Ky.	Best table mats	1.00
Miss M. Johnson, Dayton, O.	2d best table mats	.50
Same	Best tray cloth	1.00
Mrs. Gamble Shields, Marysville, O.	2d best tray cloth	.50
Miss Mattie Hall, Lexington, Ky.	Best six doylies	1.00
Miss M. Johnson, Dayton, O.	2d best six doylies	.50
Same	Best specimen	1.00
Miss Anna Miller, Quincy, Ill.	2d best specimen	.50
Miss Mattie Hall, Lexington, Ky.	Best display	3.00
Mrs. A. G. Trimble, Marion, O.	2d best display	2.00
Embroidery — on Cotton or Linen.		
Miss Anna Miller, Quincy, Ill.	Best night dress	2.00
Mrs. C. M. Nichols, Columbus, O.	2d best night dress	1.00
Mrs. A. G. Trimble, Marion, O.	Best suit of underwear	2.00
Miss Anna Miller, Quincy, Ill.	2d best suit of underwear	1.00
Mrs. O. A. Spahr, Xenia, O.	Best pair of towels	2.00
Miss Anna Miller, Quincy, Ill.	2d best pair of towels	1.00
F. O. Brown, Urichsville, O.	Best tray cloth	2.00
Mrs. Effie Cunningham, Newark, O.	2d best tray cloth	1.00
Miss Anna Bond, Columbus, O.	Best handkerchief	1.00
Mrs. E. Buck, Lockland, O.	2d best handkerchief	.50
Mrs. Clara W. Gregg, Batavia, O.	Best specimen	2.00
Miss Mattie Hall, Lexington, Ky.	2d best specimen	1.00
Mrs. Effie Cunningham, Newark, O.	Best sideboard cover	1.00
Mrs. John Cissna, Washington C. H, O.	2d best sideboard cover	.50
Mrs. U. G. Cover, Mt. Gilead, O.	Best sofa pillow	2.00
F. O. Brown, Urichsville, O.	2d best sofa pillow	1.00
Mrs. Fred Baith, Bucyrus, O.	2d best pair pillow cases and sheet	1.00
Mrs. J. A. Beveridge, Xenia, O.	Best table cloth and napkins	3.00
Mrs. Fred Baith, Bucyrus, O.	2d best table cloth and napkins	2.00
Cross-stitch.		
Harriet Coleman, Columbus, O.	Best sofa pillow	2.00
F O. Brown, Urichsville, O.	2d best sofa pillow	1.00
Miss Anna Miller, Quincy, Ill.	Best large Afghan	3.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best large Afghan	2.00
Miss Anna Miller, Quincy, Ill.	Best small Afghan	2.00
Mrs. E. Buck, Lockland, O.	2d best small Afghan	1.00
Miss M. Johnson, Dayton, O.	Best head rest	2.00
Miss Mattie Hall, Lexington, Ky.	2d best head rest	1.00
Mrs. L. F. Rockwell, Quincy, Ill.	Best specimen cross-stitch	1.00
Mrs. J. O. Somers, Columbus, O.	2d best specimen cross-stitch	.50
Miss Mattie Hall, Lexington, Ky.	Best display	3.00
Miss Anna Miller, Quincy, Ill.	2d best display	2.00

WOMAN'S WORK — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Silk Embroidery.		
Elizabeth Leigh, Groveport, O.	Best lady's skirt	2.00
Mrs. Wilson Maxwell, Hamilton, O.	2d best lady's skirt	1.00
Mrs. C. M. Nichols, Columbus, O.	2d best handkerchief with initial	.50
Mrs. E. Buck, Lockland, O.	2d best child's dress	1.00
Miss Anna Bond, Columbus, O.	Best opera bag	1.00
Julia Gill, Columbus, O.	2d best opera bag	.50
Mrs. L. E. Rockwell, Quincy, Ill.	2d best monogram bag	.50
Miss Anna Miller, Quincy, Ill.	Best infant's cloak	2.00
Mrs. Fred Baith, Bucyrus, O.	2d best infant's cloak	1.00
Mrs. L. E. Rockwell, Quincy, Ill.	Best infant's shawl	1.00
Miss Anna Miller, Quincy, Ill.	2d best infant's shawl	.50
Mrs. Fred Baith, Bucyrus, O.	Best infant's sacque	1.30
Mrs. L. P. Wannan, Norwood, O.	2d best infant's sacque	.50
Miss Anna Bond, Columbus, O.	Best specimen	2.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best specimen	1.00
Miss Anna Bond, Columbus, O.	Best display	5.00
Roman Embroidery.		
Mrs. L. E. Rockwell, Quincy, Ill.	Best center piece	2.00
Mrs. E. Buck, Lockland, O.	2d best center piece	1.00
Mrs. C. S. David, Marysville, O.	Best tray cloth	2.00
Miss Anna Bond, Columbus, O.	2d best tray cloth	1.00
Mary Godard, Marysville, O.	Best lunch cloth	2.00
Miss Anna Bond, Columbus, O.	Best specimen	2.00
Miss Mattie Hall, Lexington, O.	2d best specimen	1.00
Miss Anna Bond, Columbus, O.	Best six doylies	2.00
Mrs. A. G. Trimble, Marion, O.	2d best six doylies	1.00
Miss Anna Bond, Columbus, O.	Best toilet cushion	2.00
Mrs. Fred Baith, Bucyrus, O.	2d best toilet cushion	1.00
Drawn Thread Work.		
Mrs. A. C. Messenger, Xenia, O.	Best drawn table cover	2.00
Mrs. L. E. Rockwell, Quincy, Ill.	2d best drawn table cover	1.00
Mrs. C. H. Rudolph, Massillon, O.	Best center piece	2.00
Mrs. W. F. Crickard, Delaware, O.	2d best center piece	1.00
Mary Godard, Marysville, O.	Best pair pillow cases	2.00
Mrs. C. H. Rudolph, Massillon, O.	2d best pair pillow cases	1.00
Mrs. C. S. David, Marysville, O.	Best tray cloth	2.00
Miss Anna Miller, Quincy, Ill.	2d best tray cloth	1.00
Miss Anna Bond, Columbus, O.	Best dresser scarf	2.00
Mrs. C. H. Rudolph, Massillon, O.	2d best dresser scarf	1.00
Miss Anna Bond, Columbus, O.	Best fayal drawn work	2.00
Mrs. Chas. Higgins, Columbus, O.	Best sideboard scarf	2.00
Mrs. C. H. Rudolph, Massillon, O.	2d best sideboard scarf	1.00
Same	Best six doylies	2.00
Mrs. A. C. Messenger, Xenia, O.	2d best six doylies	1.00
Mrs. O. A. Spahr, Xenia, O.	Best six large dinner napkins	2.00
Mrs. A. C. Messenger, Xenia, O.	2d best six large dinner napkins	1.50
Ava Main, Delaware, O.	Best elaborate linen sheet	1.00
Mrs. O. A. Spahr, Xenia, O.	2d best elaborate linen sheet	.50
Mrs. C. S. David, Marysville, O.	Best handkerchief	1.00
Mrs. John Cissna, Washington C. H., O.	2d best handkerchief	.50
Mrs. A. C. Messenger, Xenia, O.	Best specimen	1.00
Mrs. A. G. Trimble, Marion, O.	2d best specimen	.50
Same	Best specimen on silk	1.00
Mrs. L. P. Wannan, Norwood, O.	2d best specimen on silk	.50
Mrs. C. S. David, Marysville, O.	Best specimen hemstitching	1.00
Mrs. C. H. Rudolph, Massillon, O.	2d best specimen hemstitching	.50
Same	Best display	3.00
Miss Anna Miller, Quincy, Ill.	2d best display	2.00

WOMAN'S WORK — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Decorative Art Work.		
E. M. Trowbridge, Columbus, O.	Best specimen	1.50
Miss Anna Bond, Columbus, O.	2d best specimen	1.00
Laura E. Hunter, Springfield, O.	Best picture frame	1.50
E. M. Trowbridge, Columbus, O.	2d best picture frame	1.00
Carrie F. Mosteller, Newark, O.	Best letter case	1.50
E. M. Trowbridge, Columbus, O.	2d best letter case	1.00
Miss Carrie Van Sant, Delaware, O.	Best calendar	1.50
Carrie F. Mosteller, Newark, O.	2d best calendar	1.00
Same	Best magazine cover	1.50
Miss Anna Bond, Columbus, O.	2d best magazine cover	1.00
Carrie F. Mosteller, Newark, O.	Best handerchief box	1.50
Miss Anna Bond, Columbus, O.	2d best handkerchief box	1.00
E. M. Trowbridge, Columbus, O.	Best hall chair, pyrography	2.00
Miss Anna Bond, Columbus, O.	2d best hall chair, pyrography	1.00
Miss Anna Bond, Columbus, O.	Best specimen, pyrography	2.00
Same	2d best specimen, pyrography	1.00
Carrie F. Mosteller, Newark, O.	Best glove box	1.50
Miss Anna Bond, Columbus, O.	2d best glove box	1.00
Elizabeth Leigh, Groveport, O.	Best plaque	1.50
Eva B. Mosteller, Newark, O.	2d best plaque	1.00
Carrie F. Mosteller, Newark, O.	Best tray	1.50
Laura E. Hunter, Springfield, O.	Best jewel chest	1.50
Miss Anna Bond, Columbus, O.	2d best jewel chest	1.00
Same	Best photograph box	1.50
Fabric Painting.		
Eva B. Mosteller, Newark, O.	Best painting on silk	2.00
Charlotte M. Harris, Springfield, O.	2d best painting on silk	1.00
Same	Best painting on satin	2.00
Eva B. Mosteller, Newark, O.	2d best painting on satin	1.00
Carrie F. Mosteller, Newark, O.	Best painting on velvet	2.00
Mrs. H. W. Barnitz, Urbana, O.	2d best painting on velvet	1.00
Miss Carrie Van Sant, Delaware, O.	Best painting on bolting cloth	2.00
Carrie F. Mosteller, Newark, O.	2d best painting on bolting cloth	1.00
Same	Best painting on wood	2.00
Laura E. Hunter, Springfield, O.	2d best painting on wood	1.00
Eva B. Mosteller, Newark, O.	Best painting on celluloid	2.00
Mrs. H. W. Barnitz, Urbana, O.	2d best painting on celluloid	1.00
Eva B. Mosteller, Newark, O.	Best painting on ivory	2.00
Carrie F. Mosteller, Newark, O.	2d best painting on ivory	1.00
Eva B. Mosteller, Newark, O.	Best tapestry painting	2.00
Same	Best hand painted fan	2.00
Miss Carrie Van Sant, Delaware, O.	2d best hand painted fan	1.00
Carrie F. Mosteller, Newark, O.	Best hand painted plaque (not china)	2.00
Laura E. Hunter, Springfield, O.	2d best hand painted plaque (not china)	1.00
Miss Carrie Van Sant, Delaware, O.	Best hand painted screen	2.00
Same	Best hand painted banner	2.00
Eva B. Mosteller, Newark, O.	2d best hand painted banner	1.00
Same	Best display	5.00
Charlotte M. Harris, Springfield, O.	2d best display	3.00
Art Needle Work — for Amateurs.		
Mrs. Clara W. Gregg, Batavia, O.	Best sofa pillow	2.00
Mrs. Adah Conner, Plain City, O.	2d best sofa pillow	1.00
Miss Mattie Hall, Lexington, Ky.	Best lunch cloth	3.00
Mrs. Adah Conner, Plain City, O.	2d best lunch cloth	2.00
Mrs. J. Edwin Harris, Columbus, O.	Best tray cloth	2.00
Mrs. Effie Cunningham, Newark, O.	2d best tray cloth	1.00
Mrs. W. L. Townes, Columbus, O.	Best handkerchief case	2.00
Julia Gill, Columbus, O.	2d best handkerchief case	1.00
Miss Anna Bond, Columbus, O.	Best glove case	2.00
Julia Gill, Columbus, O.	2d best glove case	1.00
Same	Best photograph case	2.00
Mrs. Effie Cunningham, Newark, O.	2d best photograph case	1.00
Mrs. E. Buck, Lockland, O.	Best scrap basket	2.00
Miss Anna Bond, Columbus, O.	2d best scrap basket	1.00
Miss Mattie Hall, Lexington, Ky.	Best dresser scarf	2.00
Mrs. Clara W. Gregg, Batavia, O.	2d best dresser scarf	1.00
Mrs. E. J. Jones, Columbus, O.	Best table center	2.00
Miss Mattie Hall, Lexington, Ky.	2d best table center	1.00
Mrs. J. Edwin Harris, Columbus, O.	Best three cake doylies	2.00
Mrs. Effie Cunningham, Newark, O.	2d best three cake doylies	1.00

WOMAN'S WORK — Continued.

Owner's Name and Postoffice.	Name of Article.	Amt.
Art Needle Work—for Amateurs—Continued.		
Mrs. Fred Baith, Bucyrus, O.	Best 12-inch doylies	2.00
Mrs. Effie Cunningham, Newark, O.	Best toilet cushion	2.00
Julia Gill, Columbus, O.	2d best toilet cushion	1.00
Mrs. Jennie Guthridge, Columbus, O.	Best picture mat and frame	2.00
Mrs. E. J. Jones, Columbus, O.	2d best picture mat and frame	1.00
Miss Anna Bond, Columbus, O.	Best table cloth, embroidered in colors	3.00
Mary V. Smucker, Newark, O.	2d best table cloth, embroidered in colors	2.00
Miss Mattie Hall, Lexington, Ky.	Best jewel embroidery	2.00
Mrs. L. K. Roney, Troy, O.	2d best jewel embroidery	1.00
Mrs. U. J. Cover, Mt. Gilead, O.	Best Bulgarian embroidery	2.00
Mrs. J. O. Somers, Columbus, O.	2d best Bulgarian embroidery	1.00
Miss Mattie Hall, Lexington, Ky.	Best colonial embroidery	2.00
Miss Anna Bond, Columbus, O.	2d best colonian embroidery	1.00
Miss Carrie Van Sant, Delaware, O.	Best Peruvian embroidery	2.00
Miss M. Johnson, Dayton, O.	2d best Peruvian embroidery	1.00
Mrs. L. P. Wannan, Norwood, O.	Best Mountmellick embroidery	2.00
Miss Anna Bond, Columbus, O.	2d best Mountmellick embroidery	1.00
Same	Best Florentine embroidery	2.00
Same	Best Copenhagen embroidery	2.00
Same	Best Cornation cord embroidery	2.00
Miss Mattie Hall, Lexington, Ky.	2d best Cornation cord embroidery	1.00
Mrs. E. J. Jones, Columbus, O.	Best Persian embroidery	2.00
Miss Mattie Hall, Lexington, Ky.	2d best Persian embroidery	1.00
Miss Anna Bond, Columbus, O.	Best Oriental embroidery	2.00
Mrs. Effie Cunningham, Newark, O.	2d best Oriental embroidery	1.00
Miss Anna Bond, Columbus, O.	Best Kasara embroidery	2.00
Mrs. E. Buck, Lockland, O.	2d best fire screen	2.00
Mrs. A. C. Messenger, Xenia, O.	Best center piece	2.00
Mrs. L. K. Roney, Troy, O.	2d best center piece	1.00
Mrs. E. Buck, Lockland, O.	Best table cover	2.00
Miss Edith Ford, Springfield, O.	2d best table cover	1.00
Miss Anna Bond, Columbus, O.	Best two magazine covers	2.00
Julia Gill, Columbus, O.	2d best two magazine covers	1.00
Mrs. Effie Cunningham, Newark, O.	Best sideboard cover	2.00
Miss Mattie Hall, Lexington, Ky.	2d best sideboard cover	1.00
Mrs. U. J. Cover, Mt. Gilead, O.	Best head rest	2.00
Miss Anna Bond, Columbus, O.	2d best head rest	1.00
Same	Best party bag	2.00
Miss M. Johnson, Dayton, O.	2d best party bag	1.00
Mrs. Effie Cunningham, Newark, O.	2d best shopping bag	1.00
Mrs. Effie Cunningham, Newark, O.	Best laundry bag	2.00
Julia Gill, Columbus, O.	2d best laundry bag	1.00
Miss Edith Ford, Springfield, O.	Best fancy pincushion	1.00
Mrs. W. L. Townes, Columbus, O.	2d best fancy pincushion	.50
Miss Anna Bond, Columbus, O.	Best ottoman	2.00
Mrs. Effie Cunningham, Newark, O.	2d best ottoman	1.00
Mrs. J. Edwin Harris, Columbus, O.	Best single specimen	2.00
Mrs. E. J. Jones, Columbus, O.	2d best single specimen	1.00
Mrs. Effie Cunningham, Newark, O.	2d best display	5.00
Art Needle Work — for Professionals.		
Mrs. E. F. Black, Columbus, O.	Best display	10.00
Same	2d best display	5.00
Same	Best table set	8.00
E. M. Trowbridge, Columbus, O.	Best single specimen	5.00
Mrs. E. F. Black, Columbus, O.	2d best single specimen	3.00

WOMAN'S WORK—Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
China Painting — Amateur List.		
Mrs. W. N. Wight, Columbus, O.	Best chocolate set	2.00
Mrs. L. K. Roney, Troy, O.	2d best chocloate set	1.00
M. E. Wiltberger, Columbus, O.	Best fish set	2.00
Mrs. A. C. Messenger, Xenia, O.	Best six cups and saucers	3.00
Mrs. L. K. Roney, Troy, O.	2d best six cups and saucers	2.00
M. E. Wiltberger, Columbus, O.	Best six plates	3.00
Miss Hattie Dobell, Columbus, O.	2d best six plates	2.00
Mrs. Clarence Smith, Chillicothe, O.	Best teapot, sugar and creamer	3.00
Mrs. L. K. Roney, Troy, O.	2d best teapot, sugar and creamer	2.00
Miss Hattie Dobell, Columbus, O.	Best tankard or claret pitcher	2.00
Mrs. O. A. Spahr, Xenia, O.	2d best tankard or claret p tcher	1.00
Miss Hattie Dobell, Columbus, O.	Best punch bowl	2.00
Grace Guthridge, Columbus, O.	2d best punch bowl	1.00
Mrs. E. L. Graham, Columbus, O.	Best loving cup	2.00
Mrs. W. N. Wight, Columbus, O.	2d best loving cup	1.00
Mrs. L. K. Roney, Troy, O.	Best dresser set	3.00
Grace Guthridge, Columbus, O.	2d best dresser set	2.00
Mrs. L. K. Roney, Troy, O.	Best jardiniere	2.00
Mary Godard, Marysville, O.	2d best jardiniere	1.00
Grace Guthridge, Columbus, O.	Best plaque	2.00
Mrs. L. K. Roney, Troy, O.	2d best plaque	1.00
Miss Hattie Dobell, Columbus, O.	Best specimen of figures	2.00
Mrs. L. K. Roney, Troy, O.	2d best specimen of figures	1.00
M. E. Wiltberger, Columbus, O.	Best specimen of china painting	2.00
Elizabeth Leigh, Groveport, O.	2d best specimen of china painting	1.00
Same	Best specimen of gold paste	2.00
Mrs. L. K. Roney, Troy, O.	2d best specimen of gold paste	1.00
Miss Hattie Dobell, Columbus, O.	Best salad dish	2.00
Mrs. L. K. Roney, Troy, O.	2d best salad dish	1.00
Elizabeth Leigh, Groveport, O.	Best cake plate	2.00
Grace Guthridge, Columbus, O.	2d best cake plate	1.00
Mrs. L. K. Roney, Troy, O.	Best tray	2.00
Miss Hattie Dobell, Columbus, O.	2d best tray	1.00
Elizabeth Leigh, Groveport, O.	Best vase	2.00
Mrs. L. K. Roney, Troy, O.	2d best vase	1.00
M. E. Wiltberger, Columbus, O.	Best display	5.00
Mrs. W. N. Wight, Columbus, O.	2d best display	3.00
China Painting — Professional List.		
Harriet Coleman, Columbus, O.	Best specimen	4.00
H. W. Barnitz, Urbana, O.	Best portrait	4.00
Elizabeth Leigh, Groveport, O.	2d best portrait	2.00
Same	Best figure	4.00
H. W. Barnitz, Urbana, O.	2d best figure	2.00
Carrie F. Mosteller, Newark, O.	Best panel	3.00
Harriet Coleman, Columbus, O.	Best plaque	3.00
H. W. Barnitz, Urbana, O.	2d best plaque	1.00
Harriet Coleman, Columbus, O.	Best specimen conventional work	3.00
Mrs. H. W. Barnitz, Urbana, O.	2d best specimen conventional work	1.00
Mrs. L. C. Davis, Columbus, O.	Best tankard or claret pitcher	2.00
Harriet Coleman, Columbus, O.	2d best tankard or claret pitcher	1.00
Same	Best vase	3.00
Mrs. L. C. Davis, Columbus, O.	2d best vase	2.00
Carrie F. Mosteller, Newark, O.	Best loving cup	3.00
Mrs. L. C. Davis, Columbus, O.	Best six plates	3.00
Harriet Coleman, Columbus, O.	2d best six plates	2.00
Same	Best specimen enamel	2.00
Mrs. L. C. Davis, Columbus, O.	Best specimen paste	2.00
Harriet Coleman, Columbus, O.	2d best specimen paste	1.00
Same	Best display	8.00

PRESERVES, PICKLES, ETC.

Owner's Name and Postoffice.	Name of Article.	Amt.
Preserves, Pickles, etc.		
Mrs. M. B. Clutter, Alexandria, O.	Best canned tomatoes	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best canned tomatoes	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best canned blackberries	2.00
Mrs. Martha H. Montgomery, Newark, O.	2d best canned blackberries	1.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best canned raspberries	2.00
Mrs. Maggie Rhinehart, Marion, O.	2d best canned raspberries	1.00
Mrs. E. G. Taggart, Lewis Center, O.	Best canned peaches	2.00
Mrs. U. J. Cover, Mt. Gilead, O.	2d best canned peaches	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best canned pears	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best canned pears	1.00
Mrs. H. Bieber, Delaware, O.	Best canned apples	2.00
Mrs. A. G. Trimble, Marion, O.	2d best canned apples	1.00
Mrs. H. Bieber, Delaware, O.	Best canned quinces	2.00
Mrs. S. B. McFarland, Sunbury, O.	2d best canned quinces	1.00
Mrs. W. H. Snedeker, Delaware, O.	Best canned strawberries	2.00
Mrs. Maggie Rhinehart, Marion, O.	2d best canned strawberries	1.00
Mrs. O. C. Stockman, Prospect, O.	Best canned cherries	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best canned cherries	1.00
Same	Best canned gooseberries	2.00
Mrs. A. G. Trimble, Marion, O.	2d best canned gooseberries	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best canned currants	2.00
Mrs. O. C. Stockman, Prospect, O.	2d best canned currants	1.00
Mrs. L. E. Davis, Zimmer ,O.	Best canned grapes	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best canned grapes	1.00
Same	Best canned plums	2.00
Mrs. Mary A. Perry, Columbus, O.	2d best canned plums	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best canned peas	2.00
Mrs. A. G. Trimble, Marion, O.	2d best canned peas	1.00
Mrs. O. C. Stockman, Prospect, O.	Best canned beans	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best canned beans	1.00
Mrs. O. C. Stockman, Prospect, O.	Best canned rhubarb	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best canned rhubarb	1.00
Same	Best and largest variety canned fruit	5.00
Mrs. A. G. Trimble, Marion, O.	2d best and largest variety canned fruit	3.00
Mrs. M. B. Clutter, Alexandria, O.	Best and largest variety pickles	5.00
Mrs. A. G. Trimble, Marion, O.	2d best and largest variety pickles	3.00
Mrs. M. B. Clutter, Alexandria, O.	Best and largest variety jellies	5.00
Mrs. A. G. Trimble, Marion, O.	2d best and largest variety jellies	3.00
Mrs. A. Case, Lewis Center, O.	Best blackberry jelly	2.00
A L. Perry, Lewis Center, O.	2d best blackberry jelly	1.00
Mrs. H. Bieber, Delaware, O.	Best cherry jelly	2.00
Minnie E. Bieber, Delaware, O.	2d best cherry jelly	1.00
Mrs. H. Bieber, Delaware, O.	Best cranberry jelly	2.00
A. L. Perry, Lewis Center, O.	2d best cranberry jelly	1.00
Lucy W. Taggart, Lewis Center, O.	Best gooseberry jelly	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best gooseberry jelly	1.00
Mrs. H. Bieber, Delaware, O.	Best grape jelly	2.00
Minnie E. Bieber, Delaware, O.	2d best grape jelly	1.00
Mrs. A. Case, Lewis Center, O.	Best plum jelly	2.00
Mrs. Martha H. Montgomery, Newark, O.	2d best plum jelly	1.00
Mary Snedaker, Delaware, O.	Best raspberry jelly	2.00
Lucy W. Taggart, Lewis Center, O.	2d best raspberry jelly	1.00
Same	Best strawberry jelly	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best strawberry jelly	1.00
A. L. Perry, Lewis Center, O.	Best apple jelly	2.00
Grace Guthridge, Columbus, O.	2d best apple jelly	1.00
Lucy W. Taggart, Lewis Center, O.	Best pear jelly	2.00
Mrs. L. E. Davis, Zimmer, O.	2d best pear jelly	1.00
Mrs. H. Bieber, Delaware, O.	Best crab apple jelly	2.00
Grace Guthridge, Columbus, O.	2d best crab apple jelly	1.00
Minnie E. Bieber, Delaware, O.	Best currant jelly	2.00
Mrs. L. E. Davis, Zimmer, O.	2d best currant jelly	1.00
Mrs. H. Bieber, Delaware, O.	Best peach jelly	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best peach jelly	1.00
Lucy W. Taggart, Lewis Center, O.	Best quince jelly	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best quince jelly	1.00
Minnie E. Bieber, Delaware, O.	Best preserved quinces	2.00
Mrs. H. Bieber, Delaware, O.	2d best preserved quinces	1.00
Mrs. W. H. Snedeker, Delaware, O.	Best preserved pears	2.00
Mrs. H. Bieber, Delaware, O.	2d best preserved pears	1.00
A. L. Perry, Lewis Center, O.	Best preserved apples	2.00
Minnie E. Bieber, Delaware, O.	2d best preserved apples	1.00
Mrs. H. Bieber, Delaware O.	Best preserved plums	2.00

PRESERVES, PICKLES, ETC.—Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
Preserves, Pickles, etc.—Continued.		
Minnie E. Bieber, Delaware, O.	2d best preserved plums	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best preserved cherries	2.00
Mrs. Martha H. Montgomery, Newark, O.	2d best preserved cherries	1.00
Mrs. H. Bieber, Delaware, O.	Best preserved crab apples	2.00
Minnie E. Bieber, Delaware, O.	2d best preserved crab apples	1.00
Mrs. A. G. Trimble, Marion, O.	Best preservd grapes	2.00
Mrs. Maggie Rhinehart, Marion, O.	2d best preserved grapes	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best preserved strawberries	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best preserved strawberries	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best preserved blackberries	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best preserved blackberries	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best preserved peaches	2.00
Minnie E. Bieber, Delaware, O.	2d best preserved peaches	1.00
Mrs. L. E. Davis, Zimmer, O.	Best preserved currants	2.00
Mrs. A. G. Trimble, Marion, O.	2d best preserved currants	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best preserved gooseberries	2.00
Susie E. Perry, Columbus, O.	2d best preserved gooseberries	1.00
Mrs. E. G. Taggart, Lewis Center, O.	Best preserved melons	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best preserved melons	1.00
Mrs. U. J. Cover, Mt. Gilead, O.	Best tomato catsup	2.00
A L. Perry, Lewis Center, O.	2d best tomato catsup	1.00
Mrs.Mary A. Perry, Columbus, O.	Best cucumber catsup	2.00
A. L. Perry, Lewis Center, O.	2d best cucumber catsup	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best pickled cucumbers	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best pickled cucumbers	1.00
Mrs. H. Bieber, Delaware, O.	Best pickled peaches	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best pickled peaches	1.00
Same	Best pickled pears	2.00
Mary Snedeker, Delaware, O.	2d best pickled pears	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best mixed pickles	2.00
Mrs. E. G. Taggart, Lewis Center, O.	2d best mixed pickles	1.00
Mary Snedeker, Delaware, O.	Best pickled tomatoes	2.00
Mrs. Mary A. Perry, Columbus, O.	2d best pickled tomatoes	1.00
Mrs. H. Bieber, Delaware, O.	Best pickled mangoes	2.00
Mrs. A. G. Trimble, Marion, O.	2d best pickled mangoes	1.00
Mrs. H. Bieber, Delaware. O.	Best pickled melons	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best pickled melons	1.00
Miss M. Johnson, Dayton, O.	Best pickled onions	2.00
Mrs. U. J. Cover, Mt. Gilead, O.	2d best pickled onions	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best pickled gherkins	2.00
Mrs. C. M. Nichols, Columbus, O.	2d best pickled gherkins	1.00
Mrs. L. E. Davis, Zimmer, O.	Best pickled cabbage	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best pickled cabbage	1.00
Same	Best pickled cauliflower	2.00
Mrs. Maggie Rhinehart, Marion, O.	2d best pickled cauliflower	1.00
Lucy W. Taggart, Lewis Center, O.	Best chili sauce	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best chili sauce	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best chowchow	2.00
Mrs. H. Bieber, Delaware, O.	2d best chowchow	1.00

CEREAL FOODS.

Owner's Name and Postoffice.	Name of Article.	Amt.
Cereal Foods.		
Mrs. W. H. Snedeker, Delaware, O.	Best yeast bread	2.00
Mrs. Chas. W. Wing, Columbus, O.	2d best yeast bread	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best corn bread	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best corn bread	1.00
Ava Main, Delaware, O	Best rye bread	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best rye bread	1.00
Same	Best brown bread	2.00
H. B. Main, Delaware, O.	2d best brown bread	1.00
Ava Main, Delaware, O	Best graham bread	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best graham bread	1.00
Mrs. W. E. Morgan, Columbus, O.	Best domestic raised biscuit	2.00
A. L. Perry, Lewis Center, O.	2d best domestic raised biscuit	1.00
Mrs. U. J. Cover, Mt. Gilead, O.	Best layer cake	2.00
Mrs. W. H. Snedeker, Delaware, O.	2d best layer cake	1.00
Mrs. U. J. Cover, Mt. Gilead, O.	Best white loaf cake	2.00
Mrs. H. Bieber, Delaware, O.	2d best white loaf cake	1.00
Mrs. M. B. Clutter, Alexandria, O.	Best fruit cake	2.00
Mrs. H. Bieber, Delaware, O.	2d best fruit cake	1.00
Mrs. G. Von Scheele, Grogan, O.	Best marble cake	2.00
Mrs. M. B. Clutter, Alexandria, O.	2d best marble cake	1.00
Mrs. Chas. M. Wing, Columbus, O.	Best chocolate layer cake	2.00
Jesse Goodrich, Worthington, O.	2d best chocolate layer cake	1.00
Lucy W. Taggart. Lewis Center, O.	Best caramel cake	2.00
Mrs. H. Bieber. Delaware. O.	2d best caramel cake	1.00
Mrs. U. J. Cover. Mt. Gilead, O.	Best cocoanut cake	2.00
Mrs. G. Von Scheele, Grogan, O.	2d best cocoanut cake	1.00
Mary Snedeker, Delaware, O.	Best ginger snaps	1.00
Same	Best sweet wafers	1.00

TWELFTH DEPARTMENT.

FINE ARTS—Samuel Taylor, Member in Charge.

Original Productions—Open to All.		
Oil Paintings.		
John Piersche, Columbus, O.	Best portrait	8.00
Elizabeth Heil, Zimmer, O.	2d best portrait	4.00
H. W. Barnitz, Urbana, O.	Best full length figure	5.00
Mrs. Anna Andes, Marion, O.	2d best full length figure	3.00
Lyman Bell, Circleville, O.	Best animal study	8.00
H. W. Barnitz, Urbana, O.	2d best animal study	4.00
John Piersche, Columbus, O.	Best landscape	5.00
H. W. Barnitz, Urbana, O.	2d best landscape	3.00
John Piersche, Columbus, O.	Best Ohio landscape	5.00
Theodora Morgan, Delaware, O.	2d best Ohio landscape	8.00
John Piersche, Columbus, O.	Best fruit or flower study	5.00
Theodora Morgan, Delaware, O.	2d best fruit or flower study	3.00
John Piersche, Columbus, O.	Best still life study	5.00
Theodora Morgan, Delaware, O.	2d best still life study	8.00
Elizabeth Heil, Zimmer, O.	Best exhibition	15.00
John Piersche, Columbus, O.	2d best exhibition	8.00
Water Color Paintings.		
H. W. Barnitz, Urbana, O.	Best portrait	5.00
Arlington Yach, Columbus, O.	2d best portrait	3.00
H. W. Barnitz, Urbana, O.	Best figure piece	4.00
Lane & Co., Columbus, O.	2d best figure piece	2.00
John Piersche, Columbus, O.	Best Ohio landscape	4.00
Theodora Morgan, Delaware, O.	2d best Ohio landscape	2.00
Miss E. L. Jenkins, Columbus, O.	Best fruit or flower piece	4.00
John Piersche, Columbus, O.	2d best fruit or flower piece	2.00
Same	Best still life piece	4.00
H. W. Barnitz, Urbana, O.	2d best still life piece	2.00
John Piersche, Columbus, O.	Best exhibition	10.00
Mrs. L. C. Davis, Columbus, O.	2d best exhibition	5.00
Pastels.		
H. W. Barnitz, Urbana, O.	Best portrait	4.00
John Piersche, Columbus, O.	2d best portrait	2.00
Same	Best landscape	4.00
H. W. Barnitz, Urbana, O.	2d best landscape	2.00
Same	Best game study	4.00
Mrs. Anna Andes, Marion, O.	2d best game study	2.00
Eva B. Mosteller, Newark, O.	Best fruit or flower piece	4.00
H. W. Barnitz, Urbana, O.	2d best fruit or flower piece	2.00
Same	Best figure piece	4.00
Drawings.		
H. W. Barnitz, Urbana, O.	Best crayon or charcoal portrait	3.00
Arlington Yach, Columbus, O.	2d best crayon or charcoal portrait	1.00
Eva B. Mosteller, Newark, O.	Best crayon or charcoal landscape	8.00
H. W. Barnitz, Urbana, O.	2d best crayon or charcoal landscape	1.00
Same	Best pen and ink drawing	3.00
Miss Ida Andes, Marion, O.	2d best pen and ink drawing	1.00
Lane & Co., Columbus, O.	Best exhibition of photography	Silver Medal
Sculpture		
Mrs. H. W. Barnitz, Urbana, O.	Plaster, marble or bronze	4.00
Same	Best bust from life	8.00
John Piersche, Columbus, O.	Best figure in round	8.00

FINE ARTS — Concluded.

Owner's Name and Postoffice.	Name of Article.	Amt.
Original Productions — Open to Amateurs Only.		
Oil Paintings.		
Lillian Maria Farmer, Columbus, O.	Best portrait	5.00
Maud Myers, Columbus, O.	2d best portrait	3.00
Miss Elta C. Moore, Columbus, O.	Best figure piece	3.00
Miss Virginia Kiser, Columbus, O.	2d best figure piece	1.00
Carrie F. Mosteller, Newark, O.	Best Ohio landscape	3.00
Maud Myers, Columbus, O.	2d best Ohio landscape	1.00
Miss Elta C. Moore, Columbus, O.	Best fruit or flower piece	3.00
Maud Myers, Columbus, O.	2d best fruit or flower piece	1.00
Same	Best still life piece	3.00
Miss M. Johnson, Dayton, O.	2d best still life piece	1.00
Miss Elta C. Moore, Columbus, O.	Best exhibition	10.00
Lillian Maria Farmer, Columbus, O.	2d best exhibition	5.00
Water Color Paintings.		
Miss Carrie Van Sant, Delaware, O.	Best portrait	4.00
Laura E. Hunter, Springfield, O.	2d best portrait	2.00
Miss Carrie Van Sant, Delaware, O.	Best figure piece	3.00
E. B. McKinney, Columbus, O.	2d best figure piece	1.00
Nellie E. Ziegler, Columbus, O.	Best Ohio landscape	3.00
Mrs. G. E. Brittain, Dayton, O	2d best Ohio landscape	1.00
Miss M. Johnson, Dayton, O.	Best fruit or flower piece	3.00
Lillian Maria Farmer, Columbus, O.	2d best fruit or flower piece	1.00
Nellie E. Ziegler, Columbus, O.	Best still life piece	3.00
Carrie F. Mosteller, Newark, O.	2d best still life piece	1.00
Nellie E. Ziegler, Columbus, O.	Best exhibition	8.00
Miss M. Johnson, Dayton, O.	2d best exhibition	4.00
Pastels.		
Maud Myers, Columbus, O.	Best portrait	4.00
Mrs. G. E. Brittain, Dayton, O	Best landscape	3.00
Maud Myers, Columbus, O.	2d best landscape	1.00
Mrs. G. E. Brittain, Dayton, O	Best fruit or flower study	3.00
Maud Myers, Columbus, O.	2d best fruit or flower study	1.00
Drawings.		
Maud Myers, Columbus, O.	Best crayon or charcoal portrait	2.00
Miss Elta C. Moore, Columbus, O.	2d best crayon or charcoal portrait	1.00
Carrie F. Mosteller, Newark, O.	Best crayon or charcoal landscape	2.00
Nelle McClimans, Mt. Sterling, O.	2d best crayon or charcoal landscape	1.00
Maud Myers, Columbus, O.	Best pen and ink drawing	2.00
Percy F. Ossing, Columbus, O.	2d best pen and ink drawing	1.00
E. B. McKinney, Columbus, O.	Best architectural drawings	2.00
C. E. Howell, Columbus, O.	2d best architectural drawings	1.00
James E. Taggart, Lewis Center, O.	Best display of photography	2.00
Nelle McClimans, Mt. Sterling, O.	Best display of drawing in pencil, charcoal, crayon, or brush	4.00
E. B. McKinney, Columbus, O.	2d best display of drawing in pencil, charcoal, crayon, or brush	2.00
Sculpture, Carving and Burnt Wood Etching.		
Nellie E. Ziegler, Columbus, O.	Best specimen of work in terra-cotta, clay, plaster or marble	3.00
Lillian Maria Farmer, Columbus, O.	2d best specimen of work in terra-cotta, clay, plaster or marble	1.00
Miss Anna Bond, Columbus, O.	Best display of burnt wood etching	7.00

EXHIBITS IN NON-PREMIUM DEPARTMENTS.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

T. E. CROMLEY, Member in Charge.

American Harrow Co., Detroit, Mich.	Cultivators, disc harrows, corn planters, potato planters and manure spreaders.
Allen & Co., S. L., Philadelphia, Pa.	Cultivators, harrows and garden drills.
Akron Cultivator Co., Akron, O.	Riding and walking cultivators.
American Steel & Wire Co., Chicago, Ill.	Wire fence and gates.
Acme Manufacturing Co., Lexington, O.	Butter workers.
Bradley, David, Manufacturing Co., Bradley, Ill.	Corn planters, plows, cultivators, harrows, shovel plows, corn drill and potato digger.
Bateman Manufacturing Co., Grenloch, N. J.	Potato planters, cultivators, wheel hoes and seed drills.
Brown-Manley Plow Co., Malta, O.	Cultivators, harrows and barrel truck.
Brown Manufacturing Co., Zanesville, O.	Farm wagons, cultivators, harrows and shovel plows.
Biery Manufacturing Co., Upper Sandusky, O.	Sweep feed mills.
Bucher Gibbs Plow Co., Canton, O.	Plows, land rollers, harrows and cultivators.
Buch, A., Sons. & Co., Elizabethtown, Pa.	Land rollers, corn shellers, fodder cutter, stock tanks, lawn swing and poultry troughs.
Bowen Cable Stay Fence Co., Norwalk, O.	Wire fence machines, wire reels and fence supplies.
Bradley, C., Columbus, O.	Walter A. Wood mower.
Bennett, H. L. & Co., Westerville, O.	Tile ditcher, dump box wagon, handy wagon, corn harvesters and stump puller.
Behrens, C. W., Lancaster, O.	Combination wagon boxes.
Buckeye Phosphate Co., Columbus, O.	Bottled samples of phosphates.
Bowsher, N. P. Co., South Bend, Ind.	Power feed grinders and sweep mill.
Cast Steel Plow Co., Dayton, O.	Plows, harrows, cultivators and land roller.
Clipper Plow Co., Defiance, O.	Cultivators.
Champion Wagon Co., Owego, N. Y.	Wagons.
Case & Co., J. I., Racine, Wis.	Engines, thrashers, water tank, wind stacker, weigher and self-feeder.
Cleveland Dryer Co., Cleveland, O.	Fertilizers.
Chase Pump Co., Columbus, O.	Pumps.
Cyclone Drilling Machine Co., Orrville, O.	Drilling machines.

Collins Plow Co., Quincy, Ill	Hay presses and cultivators.
Champion Thrasher Co., Orrville, O	Engine and thrasher.
Cedar Rapids Pump Co., Cedar Rapids. Ia	Pumps and rubber hose.
Chicago Scale Co., Chicago, Ill	Stock scales.
Carter Wire Fence Co., Mt. Sterling, O	Fence machine.
Champion Evaporator Co., Hudson, O	Evaporator and gathering tank.
Coquillard Wagon Works, South Bend, Ind	Farm wagons.
Deuscher, H. P. & Co., Hamilton, O	Corn planter, corn drill, harrows, cultivators, pulverizer, garden plow and hay rake.
Deere & Co., Deere & Mauser Co., and John Deere Plow Co., Moline, Ill	Plows, cultivators, harrows, hay rake, hay loader, potato planter, corn planter, corn drill, corn shellers, potato digger, corn husker and shredder, and gasoline engine.
Dain Manufacturing Co., Ottumwa, Ia	Sweep feed mills, hay loader, lawn swing, corn harvester, hand cart, barrel cart and shoveling board.
De Soto Agricultural Co., De Soto, Mo	Corn husker and shredder.
Dysart, B. W., Springfield, O	Automatic drive gate.
De Laval Separator Co., New York, N. Y	Cream separators.
Evans, A. C., Manufacturing Co., Springfield, O	Corn planters potato planters, corn drills, harrows, cultivators and plows.
Eastern Moline Plow Co., Indianapolis, Ind	Cultivators, harrows, plows, corn drill, planters, etc.
Empire Drill Co., Shortsville, N. Y	Grain drills.
Fett, Arras, Bluffton, O	Cream separators.
Flint & Walling Manufacturing Co., Kendallville, Ind	Windmills, tanks and pumps.
Foos Manufacturing Co., Springfield, O	Power feed grinder, corn harvester. corn sheller and kit of blacksmith tools.
Frost Wire Fence Co., Cleveland, O	Wire fencing, steel gates and coil spring wire.
Foster & Hall, Springfield, O	Sweep feed mill.
Gale Manufacturing Co., Albion, Mich	Plows, harrows, cultivators, corn planters, hay rake and land roller.
German Kali Works, New York, N. Y	Potash.
Greenville Implement Co., Greenville, Mich	Plows, land roller, weeder, feed cutter, feed cooker, potato planter and garden tools.
Hartman Manufacturing Co., Vincennes, Ind	Plows and cultivators.
Hydraulic Press Manufacturing Co., Mt. Gilead, O	Cider press and bagger and weigher.
Hoosier Drill Co., Richmond, Ind	Drills and planters.
Hoover & Prout, Avery, O	Potato digger.
Harrison, W. R., & Co., Massillon, O	Feed cutter, land roller and elevator.

Hinch & Dromgold, York, Pa	Harrows, cultivators, grain drill, corn sheller, cider mill, feed cutter, potato digger and lawn chairs.
Halbeisen, Frank, Erlin, O	Farm gate.
Hartzell, J. A., Portland, Ind	Patent cistern.
Hussey, E. B. & Son., Pendleton, Ind	Mowing machine.
Jones National Fence Co., Columbus, O	Lawn fences, gates, hitching posts, bicycle racks, tree guards.
Keystone Farm Machine Co., York, Penn	Corn shellers, cider mills, cutting boxes, weeders, cultivators and lawn settees.
Keystone Manufacturing Co., Sterling, Ill	Corn planters, corn drill, potato planter, hay rake, hay loader, harrows, broadcast seeder, barrel truck, corn husker and fodder shredder and hay press.
Kansas City Hay Press Co., Kansas City, Mo	Hay presses, gas engine, scales, feed mill and farm wagons.
Kemp & Burpee, Syracuse, N. Y	Manure spreader.
Kitselman Bros., Ridgeville, Ind	Fence and fence machine.
Kinney, E. T. Co., Indianapolis, Ind	Corn husker.
Long Allstatter Co., Hamilton, O	Tool grinder, sickle, saw, paper holders and cutters.
Kerns, John A., Amanda, O	Grain and seed cleaner.
Long-Allstatter Co., Hamilton, O	Plows, cultivators, harrows, hay rake and feed cutter.
Leader Cream Separator Co., Dayton, O	Cream separators.
Leader Fence Machine Manufacturing Co., St. Charles, Ill	Fence machine.
McSherry Manufacturing Co., Middletown, O	Grain drill, disc harrow and tobacco transplanter.
Mast, P. P. & Co., Springfield, O	Grain drills, cultivators and cider mills.
Marcy Manufacturing Co., R. G., Bluffton, Ind	Wind mills, tanks, tank heaters, pumps, pump cylinders and rubber hose.
Mast, Foos & Co., Springfield, O	Wind mills and pumps.
Mason, W. H. & Co., Leesburg, O	Wire fence and supplies.
Milburn Wagon Co., Toledo, O	Wagons.
Manlove Gate Co., Milton, Ind	Farm gate.
Medina Mfg. Co., Medina, O	Wind mills.
Nelson Morris & Co., Chicago, Ill	Meat and fertilizers.
Northwestern Scraper Co., Anderson, Ind	Road machine.
Olds Wagon Works, Ft. Wayne, Ind	Wagons.
Oliver Chilled Plow Co., South Bend, Ind	Plows.
Ohio Rake Co., Dayton, O	Hay loader, hay tedders, hay rake, cultivators, harrows, corn planters, lawn and porch swings.

Ohio Cultivator Co., Bellevue, O.	Cultivators, harrows, land roller and shovel plows.
Parlin & Orendorf Co., Canton, Ill	Plows, cultivators, harrows and corn planters.
Page Woven Wire Fence Co., Adrian, Mich.	Wire fence and gates.
Rosenthal Husker Co., Milwaukee, Wis.	Corn husker.
Rippley Hardware Co., Grafton, Ill	Steam feed cooker and compressed air sprayer.
Rock Island Plow Co., Rock Island, Ill.	Plows, cultivators, harrows, hay loaders, corn planters and potato diggers.
Rock Plaster Manufacturing Co., Columbus, O.	Rock plaster.
Ross, E. W. Co., Springfield, O.	Ensilage cutters, corn shellers and swivel carriers.
Reed, A. H., Philadelphia, Pa.	Cream separator.
South Bend Chilled Plow Co., South Bend, Ind.	Plows, cultivators and harrows.
Sprout, Waldrow & Co., Muncy, Penn.	Corn mills and crushers.
Seehler, D. M. Carriage Co., Moline, Ill.	Corn planters and check rowers.
Stewart, A. T. Co., Pittsburg, Pa.	Breaking plows and Apex pumps.
Standard Harrow Co., Utica, N. Y.	Harrows, cultivators, land rollers, weeders, potato diggers, bob sleds and corn shellers.
Shoemaker, E. H., Columbus, O.	Roof paint.
Sattley Mfg. Co., Springfield, O.	Plows, cultivators and corn planters.
Superior Drill Co., Springfield, O.	Grain drills, corn drills, disc harrow and hay carrier outfit.
Springfield Fertilizer Co., Springfield, O.	Fertilizers.
Smalley Manufacturing Co., Manitowoc, Wis.	Power feed cutters, corn shellers, sweep grinding mill, horse power tread mill and power feed mill.
Stoddard Manufacturing Co., Dayton, O.	Hay rakes, hay tedders, cutivators, harrows, corn planters, corn drills and corn harvesters, etc.
Stevens, A. W. & Co., Marinette, Wis.	Traction engine and corn husker.
Safety Shredder Co., New Castle, Ind.	Corn husker and shredder.
Star Manufacturing Co., New Lexington, O.	Power and sweep feed grinders.
Shunk Plow Co., Bucyrus, O.	Handy steel farm wagon, plows, cultivators, metal wagon wheel and beet lifter.
Sheidler, R., Newark, O.	Traction engine.
Superior Wire Fence Machine Co., Derby, O.	Wire fence machine.
Shimer Woven Wire Fence Co., Anderson, Ind.	Farm and lawn fencing, gates and posts.
Seiberling & Miller, Doylestown, O.	Empire binder and mower.
Syracuse Chilled Plow Co., Syracuse, N. Y.	Plows, cultivators, harrows, scrapers and wheelbarrows.
Seagrove Co., Columbus, O.	Ladders.
Smith, Alex. M., Reynoldsburg, O.	Wire fence.
Tate, F. B. Manufacturing Co., Decatur, Ill.	Land rollers, corn shellers, corn planters and shoveling board.

Thomas Manufacturing Co., Springfield, O.	Hay rakes, hay tedders, disc harrow, bicycles and lawn mowers.
Troy Wagon Co., Trey, O.	Farm wagons.
Union Corn Planter Co., Peora, Ill.	Corn planters.
United States Butter Extractor Co., Newark, N. J.	Cream separator.
Vermont Farm Machine Co., Bellows Falls, Vt.	Cream separators, Cooley creamer, churn, butter worker, Babcock milk tester and tread power.
Variety Iron Works, Columbus, O.	Galvanized iron fence, lawn sprayer and hitching posts.
Wayne Works, Richmond, Ind.	Grain drills, hoe drills, corn planters, corn drills, cutting boxes, lawn swings, wagons and carts.
Western Union Chemical Co., Cleveland, O.	Fertilizers.
Woodcock Mill Co., Chillicothe, O.	Sweep mills.
Warner's Wire Fence Machine Co., Morenci, Mich.	Wire fence machine.
Whitley Machine Co., Springfield, O.	Binder, mower and gas engine.
Williams Manufacturing Co., Kalamazoo, Mich.	Wind mills, silos and stock tanks.

MECHANICS' AND MANUFACTURERS' PRODUCTS.

T. L. CALVERT, Member in Charge.

American Art Tile Co., Columbus, O.	Flooring and building tile.
Acorn Stove Co., Aurora, Ill.	Heating and cooking stoves.
Ames, Dean & Co., Jackson, Mich.	Buggies, surreys, phaetons and road wagons.
Blackwood, Green & Co., Columbus, O.	Stoves, ranges and kitchen furniture.
Buckeye Buggy Co., Columbus, O.	Carriages, surreys, phaetons, buggies and traps.
Columbus Steel Range Co., Columbus, O.	Gas heaters.
Columbus Hygienic Co., Columbus, O.	New process of using natural gas in open stoves for offices.
Climax Buggy Co., Columbus, O.	Buggies and surreys.
Colonial Carriage Co., Circleville, O.	Buggies, phaetons and surreys.
Cook, Geo. W. & Co., Prospect, O.	Delivery wagons.
Columbus Carriage & Harness Co., Columbus, O.	Buggies, roadwagons, phaetons and surreys.
Columbus Buggy Co., Columbus, O.	Carriages, buggies, phaetons, surreys, traps, road carts and an Irish-jaunt.
Dort, Durant & Co., Flint, Mich.	Buggies, surreys, phaetons and road wagons.
Eureka Foundry Co., Columbus, O.	Office and lawn chairs, vases, etc.

Eaton, W. P., Kalamazoo, Mich.	Buggies, surreys, phaetons and road wagons.
Gaumer, E. E. & Son., Urbana, O.	Pony traps and canopy top phaetons.
Hertenstein, M. & Co., Columbus, O.	Heating and cooking stoves.
Ling, Vansickle Buggy Co., Middletown, O.	Buggies, surreys and road wagons.
Monarch Vehicle Co., Columbus, O.	Road wagons, buggies, phaetons and surreys.
Ohlen, James, Saw Co., Columbus, O.	Circular and all kinds of saws.
Parsons Vehicle Co., Columbus, O.	Novelties in road wagons, traps and run-abouts.
Patterson, W. A. & Co., Flint, Mich.	Buggies, surreys, traps and phaetons.
Post Bros. Buggy Co., Columbus, O.	Buggies, surreys, road wagons and harness.
Rich, Munk & Co., Columbus, O.	Heating and cooking stoves and refrigerators.
Roderick, Thomas, Columbus, O.	Allen's patent heater for natural gas stoves.
Seeley & Beery, Columbus, O.	Heating and cooking stoves.
Sells, J. H. & F. A., Columbus, O.	Harness saddles, robes and blankets.
Staver Carriage Co., Chicago, Ill.	Buggies, carriages and phaetons.
Scioto Buggy Co., Columbus, O.	Buggies, phaetons and surreys.
Tubular Natural Gas Stove Co., Columbus, O.	Tubular stove for natural gas.
Troy Buggy & Wagon Works, Troy, O.	Surreys, phaetons and buggies.
Union City Carriage Co., Union City, Ind.	Surreys, buggies and phaetons.
United States Carriage Co., Columbus, O.	Hearses, directors' vans, landaus and Victorias.
Vogelgesang Furnace Co., Columbus, O.	Furnaces.
Weir Pottery Company, Monmouth, Ill.	Stoneware, fruit jars, patent sealing process.
Walborn & Riker, Saint Paris, O.	Pony phaetons, road wagons and chariots.
Webster Vehicle Co., Flint, Mich.	Surreys and buggies.
Warren & Southwick, Columbus, O.	Delivery wagons.
Zimmer Manufacturing Co., Auburn, Ind.	Buggies, surreys, phaetons and road wagons.

MERCHANDISE, MUSIC, ETC.

T. L. Calvert, Member in Charge.

Bell Picture Frame Co., Columbus, O.	Pictures and frames.
Baird, Eben & Co., Columbus, O.	Shoes.
Bliss Business College, Columbus, O.	Exhibiting mode of transacting business.
Bourgne, O. F., Chicago, Ill.	Spectacles and eye glasses.
Cussins & Hornbrook, Columbus, O.	Corsets.
Church, R., Columbus, O.	Medicines.
Children's Home Society of Ohio, Columbus, O.	Advertising society.

Frees, Wm. L., Arcanum, O.	Kitchen cabinet.
Goldsmith, H., Columbus, O.	Pianos, graphophones and mandolins.
Goldsmith, I., Jr., Columbus, O.	Wire jewelry and shells.
Goodin, J. H., Jacksonville, Fla.	All kinds shells.
Goldsmith, I., Sr., Columbus, O.	Handkerchiefs, embroidery and machines.
Heskett & Jones, Columbus, O.	Beds, carpets, chairs, tables and stoves.
Hayes, Mrs., Columbus, O.	Medicine.
Henley, Mrs., Cincinnati, O.	Sheet music.
International Stock Food Co., Minneapolis, Minn.	New food for stock.
McAllister, Mohler & Co., Columbus, O.	Beds, tables, chairs and book cases.
Mutoscope Co., Columbus, O.	Mutoscopes.
Mower, S. H., Chicago, Ill.	Wire jewelry.
Minch & Moore, Columbus, O.	Pianos and organs.
National Cash Register Co., Dayton, O.	Cash register.
Onyx Paint Co., Buffalo, N. Y.	Paints.
Puntenney & Eutsler, Columbus, O.	Pianos.
Plunket, W., New York, N. Y.	Nitrate of soda.
Parsons, Mrs. A. W., Columbus, O.	Skirt supporter.
State Library, Columbus, O.	Advertising the travelling library.
Stanley Works, New Britain, Conn.	Storm sash lock.
"U Bet" Gum Co., Columbus, O.	Chewing gum.
Wilkins Redman Co., Columbus, O.	Pianos.
Westlake, E., Columbus, O.	Glass engraver and fancy glassware.
Walter, C., Chicago, Ill.	Fancy ink stands, horns of all kinds.
Yardley, A. L., Columbus, O.	Door and window screens.

State of OHIO
DEPARTMENT OF AGRICULTURE
DIVISION OF
COMMERCIAL FERTILIZERS
W. W. MILLER
SECRETARY.
J. W. FLEMING
ASST. SEC'Y.

COLUMBUS, OHIO, December 31, 1900.

To the Manufacturers, Dealers and Consumers of Commercial Fertilizers:

Agreeable to the requirement of the Fertilizer Law of Ohio, I herewith present "a correct report of all analyses" of commercial fertilizers made by the State Chemist, "and certificates filed" by the manufacturers or general agents, guaranteeing ingredients, for the year 1900.

The following tables of analyses and valuations of commercial fertilizers include all brands that have been properly licensed to sell in the state that have been found on the markets by the Deputy Inspectors of fertilizers. An additional table will be found giving a list of brands which have been properly licensed, but not found on the markets. If other brands have been sold in this state they have not been found by my Deputies.

All licenses expire December 31, 1900, and no commercial fertilizers can be legally sold or offered for sale in the state after this date until fees are paid and licenses secured by the manufacturers or agents, for the year ending December 31, 1901, so the agent who purposes handling, selling, or dealing in commercial fertilizers in 1901 will do well to see that the manufacturer has paid license on each and every brand he offers for sale, for if the manufacturer fails to do this, the "importer or party who causes it to be sold or offered for sale within the State of Ohio," will be held for the same or subjected to the payment of the fines and penalties prescribed in sections 4446*f* and 7002 of the Revised Statutes. To avoid all possibility of trouble, the agent handling commercial fertilizers should see that the manufacturer has complied with the law before goods are offered for sale. Whether or not this has been done can be learned from the manufacturer, or from the Secretary of the State Board of Agriculture, Columbus, Ohio.

All dealers in and purchasers of commercial fertilizers are interested in seeing that the fertilizer law is enforced. If they know of any brands offered for sale during 1900, not appearing in the following lists, they will confer a favor by notifying the Secretary. In a few cases goods are shipped into the state by parties who are ignorant of the law, and who will promptly comply with its requirements as soon as they receive the necessary information.

By the cooperation of farmers using commercial fertilizers, and of manufacturers and agents who comply with the requirements of the law, I feel confident that but few persons will be able to evade the law, and these only for a short time. The penalties prescribed by law and the injury to the reputation of the manufacturer who seeks to evade it are so great that he can not afford to neglect to comply with its reasonable requirements.

Manufacturers intending to place their goods on sale in Ohio should send to the Secretary for blanks on which to make formal application for license and claims for fertilizers.

Manufacturers, when applying for licenses, will facilitate the work of sampling their goods by sending to the Secretary lists of their agents and stating where goods may be found.

SAMPLES SENT BY MANUFACTURERS.

To comply with the law, manufacturers should always send samples of commercial fertilizers to the Secretary of the State Board of Agriculture, when making application for license, that they may be used in comparison with those drawn on the markets for analysis.

ADVANCE REPORTS.

It is my custom to send advance reports to manufacturers to give them an opportunity to check the Chemist's work, before the results are published in the annual report, in order to insure accuracy. The analyses reported will be published unless some errors are shown. It is not sufficient to claim the analyses are wrong because they show lower percentages than the manufacturers claim; this is not proof or evidence of error. The object of sending these advance reports is to enable me to eliminate errors should they exist. Where there are doubts about the findings I will have samples retested and will, if requested, cause parts of the samples in question to be sent to any member of the Association of Official Agricultural Chemists, of which Prof. Harvey W. Wiley, of Washington, D. C., is Secretary; but the manufacturers making such requests must pay the official chemists they select for making reanalyses.

REGULAR ANALYSES.

The work of sampling and analyzing fertilizers is done in accordance with the fertilizer law of the state, and under this law the Official Chemist analyzes such samples as are furnished him by the Secretary of the State Board of Agriculture.

Samples are drawn from the open markets of the state and from stocks purchased by consumers of commercial fertilizers by my duly authorized Deputy Inspectors, F. A. Derthick, Ed. Loewer, and R. H. Ramsdell. Great care is taken in this work, and samples are drawn from every brand that can be found in the state by diligent search and inquiry, covering a period from the latter part of March until the early part of December. It is regretted that samples of all licensed goods could not be found for analysis, but until manufacturers and dealers give more care to the matter of informing me where goods can be found, perfect results can not be obtained. With the information possessed by the Secretary and his Deputy Inspectors, the field has been worked diligently and faithfully.

SPECIAL ANALYSES.

I frequently have requests from farmers and agents to make special analyses of samples of commercial fertilizers. I am obliged to say that the law does not provide for these, and I have no fund for paying for the work involved. If it will be an accommodation, I will have special analyses made by the Official Chemist of such samples as may be sent me with the proper fees, as follows: "Phosphates" and "Superphosphates": Ammonia, three dollars ($3); total phosphoric acid, three dollars ($3); insoluble phosphoric acid, three dollars ($3); potash, three dollars ($3); or a total of twelve dollars ($12) if all three ingredients are claimed. "Bones" and "Tankages": Ammonia, three dollars ($3); total phosphoric acid, three dollars ($3); potash, three dollars ($3); or a total of nine dollars ($9) if all three ingredients are claimed; or, in other words, three dollars ($3) for each and every determination.

In selecting a sample for analysis great care should be taken to secure a fair average of the goods from which the sample is drawn. A small quantity should be taken from five to eight different parts—top, bottom, center, sides, etc.—of each of several packages of fertilizers, and all these small parcels should be carefully and thoroughly mixed together; then from this take from one-half pint to a pint and put into an air-tight package—glass or tin—and send by express or mail, charges prepaid.

VALUATIONS OF COMMERCIAL FERTILIZERS.

Great care has been given to the subject of valuations, and the figures given in the following tables are the results of a careful and painstaking study of the market quotations of fertilizer ingredients and the cost of mixing and placing on the markets of the state well-prepared commercial fertilizers.

Of course, it is impossible in any system of commercial valuations to fix absolutely exact prices at which goods are or can be sold, uniformly and under all circumstances and conditions. The two objects sought, however, are, first, to give a uniform scale for commercial comparison; and second, to give, as nearly as possible, a reasonably correct average price at which the farmer should have been able to buy good fertilizers in 1900.

It is always necessary to bear in mind that the values given to these fertilizers are intended to express their *commercial values;* that is, the cost at which the materials should be put together and sold at a fair profit; and are not necessarily indicative in any way of their *agricultural values,* which, of course, depend on the nature of the soils on which they are used and the needs of the crops grown.

VALUES FOR 1900.

TABLE No. 1—MIXED FERTILIZERS WITH POTASH.

Ammonia, 12½ cents per pound, or $2.50 per unit.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Insoluble phosphoric acid, in *bone,* 3¼ cents per pound, or 65 cents per unit.

Insoluble phosphoric acid, in mixed animal and mineral, 1½ cents per pound, or 30 cents per unit.

Potash (actual) from sulphate, 5¾ cents per pound, or $1.15 per unit.

Potash (actual) from muriate, 5 cents per pound, or $1.00 per unit.

TABLE No. 2—MIXED FERTILIZERS, WITHOUT POTASH.

Ammonia, 12½ cents per pound, or $2.50 per unit.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Insoluble phosphoric acid, in *bone,* 3¼ cents per pound, or 65 cents per unit.

Insoluble phosphoric acid, in mixed animal and mineral, 1½ cents per pound, or 30 cents per unit.

TABLE No. 3—DISSOLVED BONE.

Ammonia, 12½ cents per pound, or $2.50 per unit.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Insoluble phosphoric acid, 3¼ cents per pound, or 65 cents per unit.

TABLE No. 4—ROCK PHOSPHATE.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

TABLE No. 5—ROCK PHOSPHATE AND POTASH.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Potash (actual) from sulphate, 5¾ cents per pound, or $1.15 per unit.

Potash (actual) from muriate, 5 cents per pound, or $1.00 per unit.

TABLE No. 6—TANKAGE.

Ammonia, 7 cents per pound, or $1.40 per unit.
Total phosphoric acid, 3½ cents per pound, or 70 cents per unit.

TABLE No. 7—TANKAGE AND POTASH.

Ammonia, 7 cents per pound, or $1.40 per unit.
Total phosphoric acid, 3½ cents per pound, or 70 cents per unit.
Potash (actual) from sulphate, 5¾ cents per pound, or $1.15 per unit.
Potash (actual) from muriate, 5 cents per pound, or $1.00 per unit.

TABLE No. 8—BONES.

Ammonia, 12½ cents per pound, or $2.50 per unit.

Phosphoric acid, in "fine" bone, 4¼ cents per pound, or 85 cents per unit.

Phosphoric acid, in "medium" bone, 3¼ cents per pound, or 65 cents per unit.

Potash, if found present, valued same as in Table No. 1.

TABLE No. 9—POTASH SALTS.

Potash (actual) from sulphate, 5¾ cents per pound, or $1.15 per unit.
Potash (actual) from muriate, 5 cents per pound, or $1.00 per unit.

On the last page of this report will be found the fertilizer law of the state, in force at this time. W. W. MILLER, *Secretary.*

NOTE—"Unit" is a trade expression used in speaking of the ingredients of commercial fertilizers, and means one percentum of a ton, or twenty pounds; *e. g.*, ammonia 12½ cents per pound, or $2.50 per unit; that is, $2.50 for twenty pounds.

TABULATED ANALYSES AND VALUATIONS OF COMMERCIAL FERTILIZERS FOR THE YEAR ENDING DECEMBER 31, 1900.

All analyses are made by Prof. N. W. Lord, Ohio State University, Columbus, Ohio, Official Chemist.

TABLE I.—MIXED FERTILIZERS, WITH POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
1	**Dissolved Bone with Potash**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.15	2.88	8.88	8.88	2.43	0.73	11.31	2.26	2.26	14.75	1
2	**Niagara Phosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.25	3.12	8.63	8.63	2.94	0.88	11.57	1.31	1.31	13.94	2
3	**Potato, Tobacco and General Crop Fertilizer**	Claimed.	1.50	......	10.00	......	1.00	......	11.00	6.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	1.40	3.50	9.09	9.09	2.68	0.80	11.77	5.82	5.82	19.21	3
8	**Phospho Bone**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	1.25	3.12	10.50	10.50	4.53	1.36	15.03	1.18	1.18	16.16	8
10	**General Crop Phosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	1.20	3.00	8.12	8.12	3.19	0.96	11.31	1.12	1.12	13.20	10
11	**Universal Grain Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	1.20	3.00	8.57	8.57	2.62	0.79	11.19	2.30	2.30	14.66	11
12	**Potato, Hop and Tobacco Phosphate**	Claimed.	2.50	......	8.00	......	1.00	......	9.00	3.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	2.20	5.50	6.97	6.97	2.62	0.79	9.59	2.24	2.24	15.50	12
13	**Special Potato Manure**	Claimed.	4.00	......	8.00	......	1.00	......	9.00	7.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	3.75	9.38	6.58	6.58	4.16†	2.70	10.74	6.74	6.74	25.40	13

14	**American Wheat and Rye Grower**	Claimed.	1.00	.....	8.00	.....	1.00	.....	9.00	2.00	.....	.....	.....
	The Packers' Union Fertilizer Co., N. Y., N. Y	Found.	1.30	3.25	8.06	8.06	2.04	0.88	11.00	2.06	2.06	14.25	14
16	**Western Bone Black and Potash**	Claimed	0.50	.....	8.00	.....	2.00	.....	10.00	2.50	.....	.....	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found	0.65	1.62	8.18	8.18	1.79	0.54	9.97	2.06	2.06	12.40	16
17	**Bone, Blood and Potash**	Claimed	1.50	.....	9.00	.....	2.00	.....	11.00	2.00	.....	.....	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found	1.35	3.38	9.08	9.08	2.11	0.63	11.19	1.67	1.67	14.76	17
18	**Standard Truck**	Claimed.	3.00	.....	8.00	.....	2.00	.....	11.00	4.00	.....	.....	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	2.50	6.25	8.06	8.06	2.68	0.80	10.74	3.85*	4.43	19.54	18
19	**Superphosphate**	Claimed	3.00	.....	8.00	.....	4.00	.....	12.00	2.00	.....	.....	.....
	Swift & Company, Chicago, Ill.	Found	3.50	8.75	9.27	9.27	3.19	0.96	12.46	2.06*	2.37	21.35	19
22	**Ammoniated Bone and Potash**	Claimed.	5.75	.....	.....	.....	.....	.....	16.00	3.00	.....	.....	.....
	Swift & Company, Chicago, Ill.	Found.	5.75	14.38	10.74	10.74	6.33†	4.11	17.07	2.99	2.99	32.22	22
23	**Potato and Tobacco Grower**	Claimed	4.00	.....	10.00	.....	1.00	.....	11.00	5.00	.....	.....	.....
	Swift & Company, Chicago, Ill.	Found	4.35	10.88	8.76	8.76	3.64	1.09	12.40	4.86*	5.59	26.32	23
24	**Keystone Bone Phosphate**	Claimed	1.00	.....	7.00	.....	1.00	.....	8.00	1.00	.....	.....	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found.	1.60	4.00	8.57	8.57	1.02	0.31	9.59	1.31	1.31	14.19	24
25	**Wheat and Grass Manure**	Claimed	1.00	.....	8.00	.....	1.00	.....	9.00	2.00	.....	.....	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found	1.35	3.38	9.27	9.27	1.15	0.34	10.42	2.37	2.37	15.36	25
26	**Special Corn Manure**	Claimed	1.00	.....	8.00	.....	1.00	.....	9.00	2.00	.....	.....	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found	1.35	3.38	7.73	7.73	1.02	0.31	8.75	2.22	2.22	13.64	26
29	**Universal Fertilizer**	Claimed	1.00	.....	8.00	.....	1.00	.....	9.00	4.00	.....	.....	.....
	The Packers' Union Fertilizer Co., N. Y., N. Y.	Found	0.95	2.38	7.86	7.86	3.33	1.00	11.19	3.95	3.95	15.19	29
30	**Homestead, a Bone Black Fertilizer**	Claimed	2.50	.....	8.00	.....	.....	.....	9.00	1.50	.....	.....	.....
	Michigan Carbon Works, Detroit, Mich.	Found	2.35	5.88	8.57	8.57	2.62	0.79	11.19	1.76	1.76	17.00	30
33	**Lake Erie Fish Guano**	Claimed.	2.00	.....	10.00	.....	1.00	.....	11.00	1.00	.....	.....	.....
	The Jarecki Chemical Co., Sandusky, O.	Found	2.00	5.00	10.87	10.87	2.62	0.79	13.49	1.18	1.18	17.84	33

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
34	**O. K. Fertilizer**	Claimed	0.50	......	6.00	......	1.00	......	7.00	0.50	......	......	.....
	The Jarecki Chemical Co., Sandusky, O.	Found	0.75	1.88	5.89	5.89	1.28	0.38	7.17	0.87	0.87	9.02	34
36	**Grain and Grass Fertilizer**	Claimed	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The International Seed Co., Rochester, N. Y.	Found	1.80	4.50	9.98	9.98	2.87	0.86	12.85	2.01	2.01	17.35	36
37	**Nobsque Guano**	Claimed	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Pacific Guano Co., Boston, Mass.	Found	1.10	2.75	8.51	8.51	3.19	0.96	11.70	1.89	1.89	14.11	37
39	**Wheat, Oats and Barley**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	1.55	3.88	8.19	8.19	3.00	0.90	11.19	1.83	1.83	14.80	39
40	**Buffalo Guano**	Claimed	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	1.05	2.62	8.06	8.06	3.32	1.00	11.38	3.97	3.97	15.65	40
41	**Potato, Hop and Tobacco**	Claimed	2.50	......	8.00	......	1.00	......	9.00	3.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	2.70	6.75	8.57	8.57	2.56	0.77	11.13	2.62	2.62	18.71	41
43	**Big Three**	Claimed	3.00	......	5.00	......	......	......	10.00	2.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found.	3.75	9.38	5.16	5.16	7.55	2.26	12.71	1.70	1.70	18.50	43
44	**Big Four**	Claimed	5.00	......	7.00	......	......	......	12.00	4.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found	5.90	14.75	8.70	8.70	2.30	0.69	11.00	4.32*	4.97	29.11	44
45	**Big Five**	Claimed	3.00	......	5.00	......	......	......	10.00	1.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found	3.30	8.25	5.50	5.50	7.73	2.32	13.23	0.77	0.77	10.84	45

47	**Complete Fertilizer**	Claimed	1.25	......	8.00	......	3.00	......	11.00	1.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	1.35	3.38	9.14	9.14	3.00	0.90	12.14	1.00	1.00	14.42	47
48	**Atlas**	Claimed	2.00	......	8.00	......	0.50	......	8.50	2.35	......	......	....
	The Springfield Fertilizer Co., Springfield, O.	Found	2.15	5.38	8.38	8.38	2.36	0.71	10.74	2.24	2.24	16.71	48
50	**Tobacco and Vegetable**	Claimed	4.50	......	6.00	......	0.50	......	6.50	7.00	......	......	....
	The Springfield Fertilizer Co., Springfield, O.	Found	4.85	12.12	6.46	6.46	1.85	0.56	8.31	8.19	8.19	27.33	50
52	**Spot Cash Fertilizer**	Claimed	2.00	......	10.00	......		......	12.00	2.00	......	......	....
	James McCallum & Co., Dayton, O.	Found	1.50	3.75	13.31	13.31	1.72	0.52	15.03	2.35	2.35	19.93	52
57	**Soluble Bone**	Claimed	1.50	......	9.00	......	3.00	......	12.00	1.00	......	......	....
	The E. Rauh & Sons Fert. Co., Indpls., Ind.	Found.	1.55	3.88	5.06	5.06	2.49	0.75	7.55	0.27	0.27	9.96	57
62	**Bone and Potash**	Claimed	2.00	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	The Jones Fertilizing Co., Cincinnati, O.	Found.	2.85	7.12	7.49	7.49	4.28†	2.78	11.77	4.05*	4.66	22.05	62
63	**Jones' Reliable**	Claimed.	1.50	......	8.50	......	1.50	......	10.00	1.25	......	......	....
	The Jones Fertilizing Co., Cincinnati, O.	Found.	3.15	7.88	7.81	7.81	5.88†	3.82	13.69	1.47*	1.69	21.20	63
68	**Potato and Root Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.40	3.50	7.87	7.87	2.74	0.82	10.61	4.38	4.38	16.57	68
70	**Corn and Wheat Phosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.15	2.88	10.42	10.42	2.94	0.88	13.36	1.20	1.20	15.38	70
72	**Defiance Complete Manure**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Clark's Cove Fertilizer Co., Boston, Mass.	Found.	1.00	2.50	7.55	7.55	2.68	0.80	10.23	1.06	1.06	11.91	72
73	**Potato Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Clark's Cove Fertilizer Co., Boston, Mass.	Found.	1.00	2.50	8.06	8.06	3.77	1.13	11.83	3.03	3.03	14.72	73
80	**Harvest Bone**	Claimed.	1.00	......	9.00	......		......	10.00	1.00	......	......	....
	The Bowker Fertilizer Co., Boston, Mass.	Found.	1.15	2.88	11.70	11.70	2.81	0.84	14.51	1.12	1.12	16.54	80
81	**Garden City Superphosphate**	Claimed.	2.50	......	8.00	......	2.00	......	10.00	1.50	......	......	....
	The Northwestern Fert. Co., Chicago, Ill.	Found.	3.35	8.38	9.92	9.92	3.25†	2.11	13.17	1.35*	1.55	21.96	81

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* From sulphate.

† From animal matter.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
34	**O. K. Fertilizer**	Claimed	0.50	......	6.00	......	1.00	......	7.00	0.50	......	......	.....
	The Jarecki Chemical Co., Sandusky, O. ..	Found	0.75	1.88	5.89	5.89	1.28	0.38	7.17	0.87	0.87	9.02	34
36	**Grain and Grass Fertilizer**..................	Claimed	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The International Seed Co., Rochester, N. Y.	Found	1.80	4.50	9.98	9.98	2.87	0.86	12.85	2.01	2.01	17.35	36
37	**Nobsque Guano**	Claimed	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Pacific Guano Co., Boston, Mass.	Found	1.10	2.75	8.51	8.51	3.19	0.96	11.70	1.89	1.89	14.11	37
39	**Wheat, Oats and Barley**..................	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	1.55	3.88	8.19	8.19	3.00	0.90	11.19	1.83	1.83	14.80	39
40	**Buffalo Guano**	Claimed	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	1.05	2.62	8.06	8.06	3.32	1.00	11.38	3.97	3.97	15.65	40
41	**Potato, Hop and Tobacco**.................	Claimed	2.50	......	8.00	......	1.00	......	9.00	3.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found	2.70	6.75	8.57	8.57	2.56	0.77	11.13	2.62	2.62	18.71	41
43	**Big Three**	Claimed	3.00	......	5.00	......	......	......	10.00	2.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found.	3.75	9.38	5.16	5.16	7.55	2.26	12.71	1.70	1.70	18.50	43
44	**Big Four**	Claimed	5.00	......	7.00	......	......	......	12.00	4.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found	5.90	14.75	8.70	8.70	2.30	0.69	11.00	4.32*	4.97	29.11	44
45	**Big Five**	Claimed	3.00	......	5.00	......	......	......	10.00	1.00	......	......	.....
	Nelson Morris & Co., Chicago, Ill.	Found	3.30	8.25	5.50	5.50	7.73	2.32	13.23	0.77	0.77	16.84	45

47	**Complete Fertilizer**	Claimed	1.25	......	8.00	......	3.00	......	11.00	1.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	1.35	3.38	9.14	9.14	3.00	0.90	12.14	1.00	1.00	14.42	47
48	**Atlas**	Claimed	2.00	......	8.00	......	0.50	......	8.50	2.35	......	......	....
	The Springfield Fertilizer Co., Springfield, O.	Found	2.15	5.38	8.38	8.38	2.36	0.71	10.74	2.24	2.24	16.71	48
50	**Tobacco and Vegetable**	Claimed	4.50	......	6.00	......	0.50	......	6.50	7.00	......	......	....
	The Springfield Fertilizer Co., Springfield, O.	Found	4.85	12.12	6.46	6.46	1.85	0.56	8.31	8.19	8.19	27.33	50
52	**Spot Cash Fertilizer**	Claimed	2.00	......	10.00	......	......	......	12.00	2.00	......	......	....
	James McCallum & Co., Dayton, O.	Found	1.50	3.75	13.31	13.31	1.72	0.52	15.03	2.35	2.35	19.93	52
57	**Soluble Bone**	Claimed	1.50	......	9.00	......	3.00	......	12.00	1.00	......	......	....
	The E. Rauh & Sons Fert. Co., Indpls., Ind.	Found.	1.55	3.88	5.06	5.06	2.49	0.75	7.55	0.27	0.27	9.96	57
62	**Bone and Potash**	Claimed	2.00	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	The Jones Fertilizing Co., Cincinnati, O.	Found.	2.85	7.12	7.49	7.49	4.28†	2.78	11.77	4.05*	4.66	22.05	62
63	**Jones' Reliable**	Claimed.	1.50	......	8.50	......	1.50	......	10.00	1.25	......	......	....
	The Jones Fertilizing Co., Cincinnati, O.	Found.	3.15	7.88	7.81	7.81	5.88†	3.82	13.69	1.47*	1.69	21.20	63
68	**Potato and Root Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.40	3.50	7.87	7.87	2.74	0.82	10.61	4.38	4.38	16.57	68
70	**Corn and Wheat Phosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	1.15	2.88	10.42	10.42	2.94	0.88	13.36	1.20	1.20	15.38	70
72	**Defiance Complete Manure**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Clark's Cove Fertilizer Co., Boston, Mass.	Found.	1.00	2.50	7.55	7.55	2.68	0.80	10.23	1.06	1.06	11.91	72
73	**Potato Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Clark's Cove Fertilizer Co., Boston, Mass.	Found.	1.00	2.50	8.06	8.06	3.77	1.13	11.83	3.03	3.03	14.72	73
80	**Harvest Bone**	Claimed.	1.00	......	9.00	......	......	......	10.00	1.00	......	......	....
	The Bowker Fertilizer Co., Boston, Mass.	Found.	1.15	2.88	11.70	11.70	2.81	0.84	14.51	1.12	1.12	16.54	80
81	**Garden City Superphosphate**	Claimed.	2.50	......	8.00	......	2.00	......	10.00	1.50	......	......	....
	The Northwestern Fert. Co., Chicago, Ill.	Found.	3.35	8.38	9.92	9.92	3.25†	2.11	13.17	1.35*	1.55	21.96	81

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
82	**Corn and Wheat Grower**....................	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Northwestern Fert. Co., Chicago, Ill...	Found.	1.65	4.12	8.63	8.63	2.43	0.73	11.06	1.99	1.99	15.47	82
85	**Potato Grower**	Claimed.	3.00	......	9.00	......	2.00	......	11.00	2.00	......	......	.....
	The Northwestern Fert. Co., Chicago, Ill...	Found.	2.50	6.25	9.53	9.53	2.87	0.86	12.40	1.74	1.74	18.38	85
86	**Challenge Corn Grower**....................	Claimed.	2.50	......	8.00	......	2.00	......	10.00	1.50	......	......	.....
	The Northwestern Fert. Co., Chicago, Ill...	Found.	2.35	5.88	8.25	8.25	2.49	0.75	10.74	1.99	1.99	16.87	86
87	**World of Good Superphosphate**............	Claimed.	2.50	......	8.00	......	2.00	......	10.00	1.50	......	......	.....
	Packers' Fertilizer Association, Chicago, Ill.	Found.	2.20	5.50	8.12	8.12	2.43	0.73	10.55	1.64	1.64	15.99	87
90	**Century**	Claimed.	2.00	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	L. Frank and Son, Zanesville, O..........	Found.	1.35	3.38	13.31	13.31	2.17	0.65	15.48	1.79	1.79	19.13	90
91	**Anti-Trust**	Claimed.	1.00	......	9.00	......	2.00	......	11.00	1.00	......	......	.....
	L. Frank and Son, Zanesville, O..........	Found.	1.00	2.50	10.35	10.35	2.23	0.67	12.58	1.49	1.49	15.01	91
93	**Improved Superphosphate**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	1.00	2.50	10.43	10.43	2.36	0.71	12.79	1.23	1.23	14.87	93
95	**Corn and Tobacco Fertilizer**..............	Claimed.	2.00	......	8.00	......	1.00	......	9.00	5.00	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	1.25	3.12	9.47	9.47	2.17	0.65	11.64	5.16*	5.93	19.17	95
98	**Corn Fertilizer**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	M. E. Wheeler and Co., Rutland, Vt.........	Found.	1.80	4.50	7.93	7.93	2.74	0.82	10.67	2.28	2.28	15.53	98

99	**Number One Fish Guano**....................	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	.....
	The Jarecki Chemical Co., Sandusky, O.....	Found.	1.35	3.38	12.02	12.02	2.49	0.75	14.51	1.23	1.23	17.38	99
101	**Ammoniated Bone and Potash**..............	Claimed.	3.00	......	6.00	......	2.00	......	8.00	2.00	......	......	.....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	2.70	6.75	9.72	9.72	4.28	1.28	14.00	2.12*	2.44	20.19	101
102	**Grain Grower**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Armour Fertilizer Works, Chicago, Ill..	Found.	2.45	6.12	8.37	8.37	3.33	1.00	11.70	3.14*	3.61	19.10	102
103	**Wheat, Corn and Oats Special**..............	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......	.....
	The Armour Fertilizer Works, Chicago, Ill..	Found.	1.20	3.00	10.61	10.61	1.66	0.50	12.27	1.58*	1.82	15.93	103
106	**Ammoniated Superphosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.00	......	......	.....
	The Rasin-Monumental Co., Baltimore, Md.	Found.	1.35	3.38	9.46	9.46	1.34	0.40	10.80	1.18	1.18	14.42	106
107	**Erie King**	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	1.00	2.50	7.41	7.41	2.49	0.75	9.90	0.98	0.98	11.64	107
110	**Ohio Farmers' Bone Superphosphate**.........	Claimed.	1.00	......	10.00	......	3.00	......	13.00	1.00	......	......	.....
	The Western Union Chem. Co., Cleveland, O.	Found.	1.15	2.88	10.68	10.68	4.41	1.32	15.09	1.10	1.10	15.98	110
113	**Fruit and Root Crop Special**................	Claimed.	2.00	......	8.00	......	2.00	......	10.00	5.00	......	......	.....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	3.00	7.50	10.17	10.17	2.68	0.80	12.85	6.11*	7.03	25.50	113
117	**Fish and Potash Grain Special**..............	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	.....
	The Jarecki Chemical Co., Sandusky, O.....	Found.	1.70	4.25	10.67	10.67	1.79	0.54	12.46	1.99	1.99	17.45	117
118	**Homestead Potato and Tobacco Fertilizer**....	Claimed.	2.50	......	8.00	......	......	......	9.00	3.00	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	2.60	6.50	8.57	8.57	2.68	0.80	11.25	2.16	2.16	18.03	118
119	**Red Line Complete Manure**................	Claimed.	1.00	......	7.00	......	......	......	8.00	1.00	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	0.85	2.12	7.04	7.04	2.68	0.80	9.72	1.06	1.06	11.02	119
122	**Vegetable Grower**	Claimed.	4.00	......	9.00	......	1.00	......	10.00	10.00	......	......	.....
	Swift & Company, Chicago, Ill.............	Found.	4.15	10.38	7.41	7.41	0.96	0.29	8.37	12.86*	14.79	32.87	122
123	**Bone and Potash**.........................	Claimed.	3.00	......	......	......	......	......	23.50	3.00	......	......	.....
	Swift & Company, Chicago, Ill.............	Found.	3.55	8.88	9.73	9.73	13.43†	8.73	23.16	3.12*	3.59	30.93	123

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
125	**Bone and Meat**	Claimed.	3.00	......	9.00	......	......	......	10.00	3.00	......	......	.....
	The Canton Fertilizer Co., Canton, O.	Found.	1.80	4.50	9.92	9.92	1.59	0.48	11.51	2.22	2.22	17.12	125
126	**Peerless Bone Phosphate**	Claimed.	2.00	......	5.00	......	......	......	10.00	2.00	......	......	.....
	The Canton Fertilizer Co., Canton, O.	Found.	1.75	4.38	4.49	4.49	2.74†	1.78	7.23	1.56	1.56	12.21	126
127	**Potato and Truck Manure**	Claimed.	1.50	......	8.00	......	1.00	......	9.00	7.00	......	......	.....
	The International Seed Co., Rochester, N. Y.	Found.	1.85	4.62	6.72	6.72	4.53	1.36	11.25	7.46	7.46	20.16	127
128	**B. D. Sea Fowl Guano**	Claimed.	2.50	......	8.00	......	1.00	......	9.00	1.50	......	......	.....
	The Bradley Fertilizer Co., Boston, Mass.	Found.	2.50	6.25	9.84	9.84	2.43	0.73	12.27	1.45	1.45	18.27	128
129	**Fish and Potash Potato and Tobacco Food**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Jarecki Chemical Co., Sandusky, O.	Found.	1.00	2.50	10.04	10.04	1.40	0.42	11.44	4.39*	5.05	18.01	129
130	**Sheldon's Farmers' Favorite**	Claimed.	1.40	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa.	Found.	1.60	4.00	8.19	8.19	2.30	0.69	10.49	1.85	1.85	14.73	130
132	**Special Compound**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found.	1.25	3.12	8.82	8.82	1.08	0.32	9.90	4.24	4.24	16.50	132
133	**Forest City Buckeye Ammoniated Bone Superphosphate**	Claimed.	3.00	......	9.00	......	2.00	......	11.00	2.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	3.30	8.25	7.88	7.88	5.68	1.70	13.56	2.12	2.12	19.95	133

134	**Vegetable Manure**	Claimed.	3.00	......	6.00	......	1.00	......	7.00	6.00	......	......	......
	The American Reduction Co., Pittsburg, Pa.	Found.	3.75	9.38	6.84	6.84	0.96	0.29	7.80	6.93	6.93	23.44	134
135	**Iron City**	Claimed.	3.00	......	9.00	......	1.00	......	10.00	2.00	......	......	......
	The American Reduction Co., Pittsburg, Pa.	Found.	3.25	8.12	7.80	7.80	1.98	0.59	9.78	2.37	2.37	18.88	135
136	**Common Sense**	Claimed.	2.00	......	6.00	......	1.00	......	7.00	1.00	......	......	......
	The American Reduction Co., Pittsburg, Pa.	Found.	2.45	6.12	5.95	5.95	1.28†	0.83	7.23	0.73	0.73	13.63	136
137	**Corn Fertilizer**	Claimed.	3.00	......	9.00	......	1.00	......	10.00	2.00	......	......	......
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	3.00	7.50	8.44	8.44	2.30	0.69	10.74	3.14	3.14	19.77	137
145	**Bear Beef, Blood and Bone**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	......
	The Continental Fert. Co., Nashville, Tenn.	Found.	2.35	5.88	12.35	12.35	1.08	0.32	13.43	2.66	2.66	21.21	145
146	**Sure Crop Phosphate**	Claimed.	1.00	......	9.00	......	......	......	11.00	2.00	......	......	......
	The Bowker Fertilizer Co., Boston, Mass.	Found.	1.05	2.62	10.03	10.03	2.62	0.79	12.65	2.18	2.18	15.62	146
148	**Wheat and Corn Producer**	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	......
	Niagara Fertilizer Works, Buffalo, N. Y.	Found.	1.70	4.25	8.81	8.81	3.39	1.02	12.20	2.12	2.12	16.20	148
149	**Miami Phosphate**	Claimed.	1.00	......	12.00	......	......	......	14.00	1.50	......	......	......
	James McCallum & Co., Dayton, O.	Found.	1.55	3.88	12.53	12.53	0.32	0.10	12.85	1.70	1.70	18.21	149
150	**Acidulated Bone and Potash**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	......
	The Northwestern Fert. Co., Chicago, Ill.	Found.	1.20	3.00	9.92	9.92	4.02	1.21	13.94	1.20	1.20	15.33	150
151	**Hamm's Special**	Claimed.	3.00	......	11.00	......	......	......	14.68	2.00	......	......	......
	The M. Hamm Co., Washington C. H., O.	Found.	3.05	7.62	13.92	13.92	1.40	0.42	15.32	1.79	1.79	23.75	151
152	**Acidulated Bone**	Claimed.	1.00	......	8.00	......	1.60	......	9.00	1.00	......	......	......
	The M. Hamm Co., Washington C. H., O.	Found.	2.00	5.00	8.06	8.06	1.08	0.32	9.14	1.68	1.68	15.06	152
156	**Complete Fertilizer**	Claimed.	0.50	......	8.00	......	1.00	......	9.00	2.50	......	......	......
	The Buckeye Phosphate Co., Columbus, O.	Found.	0.65	1.62	6.58	6.58	1.66	0.50	8.24	2.62	2.62	11.32	156
159	**General Crop Fish Guano**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.00	......	......	......
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	0.85	2.12	7.22	7.22	2.43	0.73	9.65	0.77	0.77	10.84	159

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
160	**Corn, Oats and Wheat Fish Guano**..........	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	......
	The Ohio Farmers' Fert. Co., Columbus, O..	Found.	1.25	3.12	7.67	7.67	2.30	0.69	9.97	2.14	2.14	13.62	160
161	**Improved Wheat Maker**	Claimed.	0.50	......	8.00	......	1.00	......	9.00	2.50	......	......	......
	The Ohio Farmers' Fert. Co., Columbus, O..	Found.	0.65	1.62	7.16	7.16	1.59	0.48	8.75	2.97	2.97	12.23	161
162	**Potato and Truck**	Claimed.	3.00	......	8.00	......	1.00	......	9.00	4.00	......	......	......
	The Ohio Farmers' Fert. Co., Columbus, O..	Found.	2.75	6.88	7.68	7.68	2.81	0.84	10.49	3.78*	4.35	19.75	162
163	**Soluble Bone**	Claimed.	1.50	......	10.00	......	2.00	......	12.00	1.50	......	......	......
	The Currie Fertilizer Co., Louisville, Ky. ..	Found.	1.55	3.88	10.23	10.23	3.71	1.11	13.94	2.33	2.33	17.55	163
164	**Corn and Wheat Grower**..................	Claimed.	4.00	......	9.00	......	2.00	......	11.00	4.00	......	......	......
	The J. & F. Schroth P'k'g Co., Cincinnati, O.	Found.	3.65	9.12	8.30	8.30	4.16	1.25	12.46	5.01	5.01	23.68	164
165	**Special for Tobacco, Potatoes and Corn**......	Claimed.	1.00	......	8.00	......	1.00	......	10.00	1.50	......	......	......
	The Louisville Fertilizer Co., Louisville, Ky.	Found.	0.95	2.38	9.54	9.54	1.59	0.48	11.13	1.64	1.64	14.04	165
167	**Progress Corn and Wheat Grower**..........	Claimed.	2.00	......	9.00	......	1.00	......	10.00	1.00	......	......	......
	The Globe Fertilizer Co., Louisville, Ky. ..	Found.	2.40	6.00	9.39	9.39	1.92	0.58	11.31	0.83*	0.95	16.92	167
168	**Bone and Potash**........................	Claimed.	0.40	......	11.00	......	1.00	......	12.00	1.00	......	......	......
	The Globe Fertilizer Co., Louisville, Ky. ..	Found.	0.35	0.88	10.68	10.68	0.38	0.11	11.06	1.22*	1.40	13.07	168
169	**Miami Valley Phosphate**..................	Claimed.	3.00	......	9.00	......	4.00	......	13.00	2.75	......	......	......
	The Jones Fertilizing Co., Cincinnati, O. ..	Found.	3.75	9.38	7.42	7.42	5.88	1.76	13.30	2.76*	3.17	21.73	169

170	**Ammoniated Superphosphate and Potash**....	Claimed.	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Queen City Fert. Co., Cincinnati, O....	Found.	2.50	6.25	10.03	10.03	2.81	0.84	12.84	2.64*	3.04	20.16	170
171	**Potato Manure**	Claimed.	2.50	......	8.00	......	1.00	......	9.00	3.25	......	......	.....
	M. E. Wheeler & Co., Rutland, Vt.	Found.	2.45	6.12	7.03	7.03	3.77	1.13	10.80	3.12	3.12	17.40	171
172	**Standard**	Claimed.	1.00	......	8.00	......	......	......	9.00	4.00	......	......	.....
	The Read Fertilizer Co., New York, N. Y. ..	Found.	1.35	3.38	8.63	8.63	2.62	0.79	11.25	3.32	3.32	16.12	172
174	**Superphosphate**	Claimed.	3.00	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Marietta Bone & Phos. Co., Marietta, O.	Found.	1.25	3.12	9.91	9.91	2.23	0.67	12.14	1.22	1.22	14.92	174
175	**Bone and Animal Tankage**.................	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Marietta Bone & Phos. Co., Marietta, O.	Found.	1.00	2.50	9.91	9.91	2.49	0.75	12.40	1.10	1.10	14.26	175
177	**Wheat Special**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	1.00	......	......	.....
	The Chicago Fertilizer Co., Chicago, Ill.....	Found.	1.15	2.88	7.41	7.41	4.66	1.40	12.07	1.29	1.29	12.98	177
180	**Tobacco and Potato Grower**................	Claimed.	4.50	......	10.00	......	2.00	......	12.00	5.00	......	......	.....
	The Jones Fertilizing Co., Cincinnati, O.....	Found.	5.30	13.25	7.29	7.29	6.07†	3.95	13,36	5.70*	6.56	31.05	180
181	**New Rival Ammoniated Superphosphate**.....	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	1.60	4.00	8.49	8.49	3.52	1.06	12.01	2.24	2.24	15.79	181
183	**Buffalo Fertilizer**	Claimed.	2.50	......	8.00	......	1.00	......	9.00	1.50	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	2.55	6.38	10.24	10.24	2.68	0.80	12.92	1.50	1.50	18.92	183
185	**Potato and Truck Manure**.................	Claimed.	2.50	......	8.00	......	1.00	......	9.00	6.00	......	......	.....
	S. M. Hess & Bro., Philadelphia, Pa........	Found.	2.60	6.50	8.89	8.89	1.66	0.50	10.55	5.84	5.84	21.73	185
186	**Potato Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Pacific Guano Co., Boston, Mass......	Found.	1.20	3.00	8.31	8.31	2.36	0.71	10.67	3.28	3.28	15.30	186
188	**Royal Bone Phosphate**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	1.40	3.50	9.08	9.08	2.43	0.73	11.51	1.95	1.95	15.26	188
189	**Prolific Crop Producer**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	1.15	2.88	8.64	8.64	3.19	0.96	11.83	1.16	1.16	13.64	189

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* From sulphate.

† From animal matter.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
190	**Corn and Wheat Special**	Claimed.	1.00	.....	10.00	.....	1.00	.....	11.00	1.00	.....	.....	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	1.00	2.50	10.11	10.11	3.25	0.98	13.36	1.08	1.08	14.67	190
193	**Ontario Fish Guano with Potash**	Claimed.	2.00	.....	9.00	.....	1.00	.....	10.00	1.50	.....	.....	.....
	The Walton Fertilizer Co., Cleveland O.	Found.	2.25	5.62	10.80	10.80	1.53	0.46	12.33	1.54	1.54	18.42	193
194	**German Truck and Potato Manure**	Claimed.	3.00	.....	10.00	.....	1.00	.....	11.00	4.00	.....	.....	.....
	The Walton Fertilizer Co., Cleveland, O.	Found.	2.30	5.75	12.21	12.21	1.15	0.34	13.36	3.22	3.22	21.52	194
195	**Special Potato Bone and Potash**	Claimed.	2.00	.....	10.50	.....	.....	.....	11.00	2.00	.....	.....	.....
	Earl Herrick, Cleveland, O.	Found.	1.55	3.88	9.90	9.90	2.68	0.80	12.58	1.64	1.64	16.22	195
196	**Lindale**	Claimed.	2.00	.....	10.50	.....	.....	.....	11.00	1.00	.....	.....	.....
	Earl Herrick, Cleveland, O.	Found.	2.10	5.25	10.05	10.05	3.00	0.90	13.05	0.41	0.41	16.61	196
197	**Corn Grower**	Claimed.	2.00	.....	9.00	.....	.....	.....	9.00	2.00	.....	.....	.....
	Earl Herrick, Cleveland, O.	Found.	1.50	3.75	8.64	8.64	3.00	0.90	11.04	1.72	1.72	15.01	197
203	**Ideal Grain Grower**	Claimed.	1.00	.....	8.00	.....	1.00	.....	9.00	1.00	.....	.....	.....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	0.85	2.12	7.87	7.87	2.74	0.82	10.61	0.96	0.96	11.77	203
205	**Little Giant**	Claimed.	1.00	.....	7.00	.....	2.00	.....	9.00	1.00	.....	.....	.....
	The Zell Guano Co., Baltimore, Md.	Found.	1.10	2.75	8.38	8.38	3.13	0.94	11.51	1.14	1.14	13.21	205
206	**Ammoniated Bone and Potash**	Claimed.	1.00	.....	10.00	.....	2.00	.....	12.00	1.00	.....	.....	.....
	Packers' Fertilizer Association, Chicago Ill.	Found.	1.10	2.75	11.32	11.32	4.47	1.34	15.79	1.23	1.23	16.04	206

208	**A No. 1 Phosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Pacific Guano Co., Boston, Mass.	Found.	0.90	2.25	7.41	7.41	2.68	0.80	10.09	0.96	0.96	11.42	208
210	**Climax Phosphate**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	1.40	3.50	8.13	8.13	3.00	0.90	11.13	1.89	1.89	14.42	210
211	**Corn and Wheat Grower**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	1.05	2.62	9.65	9.65	3.33	1.00	12.98	1.14	1.14	14.41	211
214	**Ox Special Tobacco Guano**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Tennessee Chemical Co., Nashville, Tenn.	Found.	2.05	5.12	12.15	12.15	2.11	0.63	14.26	1.68	1.68	19.58	214
216	**Homestead Tobacco Grower**	Claimed.	3.50	......	10.00	......	0.50	......	10.50	3.50	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	2.85	7.12	10.74	10.74	0.13	0.04	10.87	4.01	4.01	21.91	216
217	**Bone Dust**	Claimed.	1.00	......	9.00	......	1.00	......	11.00	1.00	......	......	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	1.65	4.12	9.21	9.21	1.72	0.52	10.93	1.29*	1.48	15.33	217
218	**Kentucky Standard Tobacco Grower**	Claimed.	3.00	......	8.00	......	1.00	......	9.00	3.00	......	......	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	3.65	9.12	8.76	8.76	0.96	0.29	9.72	3.16*	3.63	21.80	218
219	**Crop Producer**	Claimed.	1.00	......	8.00	......	......	......	11.00	1.00	......	......	.....
	The Hardy Packing Co., Chicago, Ill.	Found.	1.25	3.12	7.55	7.55	2.74	0.82	10.29	1.04	1.04	12.53	219
220	**Wheat Grower**	Claimed.	0.50	......	8.00	......	......	......	11.00	2.50	......	......	.....
	The Hardy Packing Co., Chicago, Ill.	Found.	0.55	1.38	9.40	9.40	1.66	0.50	11.06	1.41	1.41	12.69	220
221	**Climax Tobacco and Potato Grower**	Claimed.	1.00	......	9.50	......	2.50	......	12.00	1.00	......	......	.....
	The Currie Fertilizer Co., Louisville, Ky.	Found.	1.25	3.12	11.64	11.64	1.59	0.48	13.23	1.56*	1.79	17.03	221
223	**High Grade Tobacco and Potato Special**	Claimed.	4.00	......	9.00	......	......	......	11.00	4.00	......	......	.....
	Jas. McCallum & Co., Dayton, O.	Found.	2.25	5.62	12.85	12.85	1.28	0.38	14.13	2.53	2.53	21.38	223
224	**Special**	Claimed.	4.00	......	9.00	......	3.00	......	12.00	4.00	......	......	.....
	The E. Rauh & Sons Fert. Co., Ind'pls, Ind.	Found.	3.30	8.25	7.80	7.80	6.33†	4.11	14.13	4.93*	5.67	25.83	224
225	**Soluble Bone**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.50	......	......	.....
	The Louisville Fertilizer Co., Louisville, Ky.	Found.	1.55	3.88	7.04	7.04	3.96	1.19	11.00	2.01	2.01	14.12	225

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* From sulphate.

† From animal matter.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
231	**Seeding Down Fertilizer**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	2.50	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O. .	Found.	2.20	5.50	10.43	10.43	1.34	0.40	11.77	2.39	2.39	18.72	231
232	**Special Club Formula**	Claimed.	1.20	......	12.00	......	......	......	12.00	3.00	......	......	.....
	The United States Fert. Co., Wheeling, W.Va.	Found.	1.00	2.50	7.16	7.16	0.70	0.21	7.86	3.34	3.34	13.21	232
233	**Good Investment**	Claimed.	3.60	......	8.00	......	2.00	......	10.00	3.00	......	......	.....
	The United States Fert. Co., Wheeling, W.Va.	Found.	1.10	2.75	5.95	5.95	1.85	0.56	7.80	2.74	2.74	12.00	233
235	**Ammonia, Bone and Potash**	Claimed.	2.25	......	8.00	......	3.00	......	11.00	2.00	......	......	.....
	Swift & Company, Chicago, Ill.	Found.	2.35	5.88	10.87	10.87	6.46	1.94	17.33	2.20*	2.53	21.22	235
236	**Dissolved Raw Bone and Potash**	Claimed.	3.00	......	8.00	......	......	......	14.00	4.00	......	......	.....
	The Canton Fertilizer Co., Canton, O.......	Found.	2.55	6.38	11.64	11.64	4.92	1.48	16.56	3.62*	4.16	23.66	236
239	**Electric Guano**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The International Seed Co., Rochester, N. Y.	Found.	1.40	3.50	8.90	8.90	2.87	0.86	11.77	1.95	1.95	15.21	239
240	**Grass, Grain and Potato**	Claimed.	1.65	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa.	Found.	1.90	4.75	8.37	8.37	2.05	0.62	10.42	3.34	3.34	17.08	240
241	**B. B. Guano**	Claimed.	2.25	......	5.00	......	1.00	......	6.00	1.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	2.25	5.62	5.25	5.25	2.05	0.62	7.30	1.18	1.18	12.67	241
242	**Ten Per Cent. Manure**	Claimed.	1.00	......	6.00	......	......	......	8.00	10.00	......	......	.....
	The Bowker Fertilizer Co., Boston, Mass....	Found.	1.50	3.75	7.68	7.68	2.74	0.82	10.42	8.11	8.11	20.36	242

243	**Button Bone**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	3.00	......	......	.....
	The Alliance Fertilizer Co., Alliance, O.	Found.	1.60	4.00	10.03	10.03	1.98	0.59	12.01	3.85	3.85	18.47	243
244	**Bone Black**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	2.00	......	......	.....
	The Alliance Fertilizer Co., Alliance, O.	Found.	1.00	2.50	6.78	6.78	2.94	0.88	9.72	2.16	2.16	12.32	244
246	**Good Grower Potato Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	1.30	3.25	8.51	8.51	2.49	0.75	11.00	3.20	3.20	15.71	246
252	**Vegetator Ammoniated Superphosphate**	Claimed.	2.50	......	8.00	......	2.00	......	10.00	3.00	......	......	.....
	The Detrick Fert. & Chem. Co., Balto., Md.	Found.	3.05	7.62	9.34	9.34	2.30	0.69	11.64	2.99	2.99	20.64	252
255	**Challenge Crop Grower**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	John S. Reese & Co., Baltimore, Md.	Found.	1.30	3.25	8.95	8.95	2.56	0.77	11.51	2.01	2.01	14.98	255
256	**Ammoniated Bone Superphosphate**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Zell Guano Co., Baltimore, Md.	Found.	1.95	4.88	9.02	9.02	2.81	0.84	11.83	2.01	2.01	16.75	256
257	**Guano for all Crops**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Cumberland Bone Phos. Co., Boston, Mass.	Found.	1.25	3.12	8.24	8.24	3.07	0.92	11.31	2.24	2.24	14.52	257
261	**Climax Phosphate**	Claimed.	1.50	......	9.00	......	2.00	......	11.00	3.00	......	......	.....
	Strecker Bros., Marietta, O.	Found.	2.10	5.25	6.20	6.20	4.60	1.38	10.80	3.37	3.37	16.20	261
262	**Acme Phosphate**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	1.00	......	......	.....
	Strecker Bros., Marietta, O.	Found.	1.65	4.12	6.64	6.64	4.16	1.25	10.80	1.83	1.83	13.84	262
268	**P. A. P. for Potatoes and Truck**	Claimed.	1.00	......	10.00	......	......	......	12.00	0.54	......	......	.....
	The Royal Fertilizer Co., Cleveland, O.	Found.	1.35	3.38	10.43	10.43	3.19	0.96	13.62	1.04	1.04	15.81	268
270	**Empire Guano**	Claimed.	2.00	......	8.00	......	1.50	......	9.50	2.00	......	......	.....
	The Rasin-Monumental Co., Baltimore, Md.	Found.	1.65	4.12	10.68	10.68	3.07	0.92	13.75	2.30	2.30	18.02	270
271	**Schroth's Special**	Claimed.	2.00	......	7.00	......	3.00	......	10.00	1.00	......	......	.....
	The J. & F. Schroth P'k'g Co., Cincinnati, O.	Found.	2.45	6.12	6.90	6.90	1.85	0.56	8.75	1.18	1.18	14.76	271
272	**Tobacco Grower**	Claimed.	3.00	......	9.00	......	2.00	......	11.00	2.00	......	......	.....
	The Northwestern Fert. Co., Chicago, Ill.	Found.	2.50	6.25	8.77	8.77	3.00	0.90	11.77	3.72	3.72	19.64	272

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
273	**Vegetable, Vine and Tobacco**..............	Claimed.	2.50	......	8.00	......	1.00	......	9.00	3.25	......	......	.....
	The Great Eastern Fert. Co., Rutland, Vt...	Found.	2.65	6.62	8.95	8.95	2.30	0.60	11.25	2.66	2.66	18.92	273
274	**Big Four Tobacco Grower**..................	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	3.00	7.50	8.76	8.76	1.53	0.46	10.29	3.49*	4.01	20.73	274
275	**Tobacco and Potato Special**...............	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	.....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	0.90	2.25	6.71	6.71	2.17	0.65	8.88	4.47	4.47	14.08	275
277	**Globe**	Claimed.	2.50	......	10.00	......	0.50	......	10.50	2.00	......	......	.....
	The Springfield Fert. Co., Springfield, O....	Found.	2.90	7.25	10.10	10.10	2.36	0.71	12.46	2.78	2.78	20.84	277
280	**Complete Manure for Potatoes and Vegetables**	Claimed.	4.00	......	8.00	......	1.00	......	9.00	7.00	......	......	.....
	The Bradley Fertilizer Co., Boston, Mass. ..	Found.	3.85	9.62	6.78	6.78	2.17	0.65	8.95	6.36	6.36	23.41	280
281	**Tobacco and Potato Fertilizer**.............	Claimed.	4.00	......	9.00	......	2.00	......	11.00	5.00	......	......	.....
	Geo. S. Bartlett, Cincinnati, O.	Found.	4.15	10.38	9.40	9.40	4.16†	2.70	13.56	5.99*	6.89	29.37	281
285	**Critchfield's Fish Guano**	Claimed.	1.50	......	10.00	......	1.00	......	11.00	2.50	......	......	.....
	The Tennessee Chemical Co., Nashville, Tenn.	Found.	2.15	5.38	12.15	12.15	0.90	0.27	13.05	3.03	3.03	20.83	285
286	**Farmers' Favorite Brand**..................	Claimed.	3.50	......	8.00	......	4.00	......	13.00	4.00	......	......	.....
	Darling & Company, Chicago, Ill...........	Found.	3.85	9.62	9.12	9.12	3.46	1.04	12.58	4.07*	4.68	24.46	286
287	**Sure Winner Brand**.......................	Claimed.	1.50	......	7.00	......	4.00	......	11.00	3.00	......	......	.....
	Darling & Company, Chicago, Ill...........	Found.	1.65	4.12	8.44	8.44	2.43	0.73	10.87	3.18	3.18	16.47	287

288	**Chicago Brand**	Claimed.	2.50	......	7.00	......	4.00	......	11.00	1.00	......	......	....
	Darling & Company, Chicago, Ill..........	Found.	2.55	6.38	9.92	9.92	4.47	1.34	14.39	1.56	1.56	19.20	288
292	**Dissolved Bone and Potash**..................	Claimed.	2.00	......	9.00	......	3.00	......	12.00	2.00	......	......	....
	The E. Rauh & Sons Fert. Co., Ind'p'lis, Ind.	Found.	1.35	3.38	8.70	8.70	6.07	1.82	14.77	2.12	2.12	16.02	292
293	**Peerless Bone and Potash**..................	Claimed.	0.50	......	8.00	......	1.00	......	9.00	2.50	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	0.45	1.12	7.54	7.54	1.92	0.58	9.46	1.72	1.72	10.96	293
296	**Corn Fertilizer**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Great Eastern Fert. Co., Rutland, Vt...	Found.	1.10	2.75	8.63	8.63	2.94	0.88	11.57	3.59	3.59	15.85	296
297	**Wheat Special**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Great Eastern Fert. Co., Rutland, Vt...	Found.	1.70	4.25	8.12	8.12	3.19	0.96	11.31	1.83	1.83	15.16	297
299	**Ammoniated Bone Superphosphate**..........	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	S. M. Hess & Bro., Philadelphia, Pa........	Found.	2.10	5.25	8.13	8.13	2.74	0.82	10.87	2.31	2.31	16.51	299
300	**Leader**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Read Fertilizer Co., New York, N. Y. ..	Found.	1.00	2.50	7.22	7.22	2.68	0.80	9.90	1.00	1.00	11.52	300
301	**Gold Coin**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Read Fertilizer Co., New York, N. Y. ..	Found.	1.85	4.62	7.61	7.61	3.13	0.94	10.74	2.04	2.04	15.21	301
302	**Farmers' Friend**........	Claimed.	2.50	......	8.00	......	......	......	9.00	3.00	......	......	....
	The Read Fertilizer Co., New York, N. Y. ..	Found.	2.75	6.88	8.44	8.44	2.56	0.77	11.00	2.93	2.93	19.02	302
309	**Grain and Grass Grower**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	Niagara Fertilizer Works, Buffalo, N. Y. ..	Found.	1.15	2.88	8.76	8.76	3.13	0.94	11.89	1.12	1.12	13.70	309
310	**English Wheat Grower**..................	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Great Eastern Fertilizer Co., Rutland, Vt.	Found.	1.05	2.62	10.54	10.54	2.11	0.63	12.65	2.03	2.03	15.82	310
314	**Valley Phosphate**	Claimed.	4.00	......	7.00	......	2.00	......	9.00	1.50	......	......	....
	The J.L.& H. Stadler R. & F.Co., Cleveland, O.	Found.	3.10	7.75	6.84	6.84	2.30	0.69	9.14	1.00	1.00	16.28	314
316	**Valley Potato Manure**....................	Claimed.	3.00	......	6.00	......	2.00	......	9.00	5.00	......	......	....
	The J.L.& H. Stadler R. & F.Co., Cleveland, O.	Found.	2.65	6.62	6.32	6.32	1.79†	1.16	8.11	5.68	5.68	10.78	316

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
318	**Ammoniated Food for Flowers**	Claimed.	2.00	......	4.00	......	......	......	6.00	2.00	......	......	.....
	The Bowker Fertilizer Co., Boston, Mass.	Found.	4.70	11.75	7.48	7.48	0.32	0.10	7.80	3.39	3.39	22.72	318
319	**Dig Bonanza**	Claimed.	2.00	......	8.00	......	1.50	......	9.00	4.00	......	......	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.95	4.88	7.80	7.80	2.62	0.79	10.42	4.16	4.16	17.63	319
320	**Garden Special**	Claimed.	1.00	......	8.00	......	......	......	11.00	4.00	......	......	.....
	The Hardy Packing Co., Chicago, Ill.	Found.	1.10	2.75	6.98	6.98	2.74	0.82	9.72	4.36	4.36	14.91	320
326	**Raw Bone and Potash**	Claimed.	2.50	......	18.00	......	2.00	......	20.00	3.50	......	......	.....
	The Alliance Fert. Co., Alliance, O.	Found.	1.80	4.50	9.01	9.01	7.04	2.11	16.05	3.66	3.66	19.28	326
328	**German Phosphate**	Claimed.	2.00	......	8.00	......	5.00	......	13.00	1.50	......	......	.....
	The Farmers' Fert. Co., Indianapolis, Ind.	Found.	2.25	5.62	8.57	8.57	5.50†	3.58	14.07	1.76	1.76	19.53	328
332	**Superphosphate with Potash**	Claimed.	2.00	......	8.50	......	1.50	......	10.00	2.00	......	......	.....
	The Bucyrus Fertilizer Co., Bucyrus, O.	Found.	1.75	4.38	9.53	9.53	4.41	1.32	13.94	2.18	2.18	17.41	332
333	**Buckeye Wheat Grower**	Claimed.	1.50	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Bucyrus Fertilizer Co., Bucyrus, O.	Found.	1.30	3.25	8.39	8.39	3.25	0.98	11.64	2.37	2.37	14.99	333
337	**Ox Special Wheat and Corn Guano**	Claimed.	1.00	......	12.00	......	1.00	......	13.00	1.00	......	......	.....
	The Tennessee Chemical Co., Nashville Tenn.	Found.	1.50	3.75	12.87	12.87	1.46	0.44	14.33	1.74	1.74	18.80	337
339	**Dissolved Bone Meal**	Claimed.	1.25	......	11.00	......	1.00	......	12.00	2.00	......	......	.....
	McWha & Sturgeon, Steubenville, O.	Found.	1.60	4.00	8.88	8.88	6.66	2.00	15.54	3.12*	3.50	18.47	339

341	**Raw Bone Phosphate**	Claimed.	3.00	......	9.00	......	1.00	......	10.00	3.00	......	......	....
	The Allegheny City Fert. Wk's, Allegheny, Pa.	Found.	3.35	8.38	8.44	8.44	4.79	1.44	13.23	2.95	2.95	21.21	341
342	**Potato Manure**	Claimed.	3.00	......	8.00	......	1.00	......	9.00	7.00	......	......	....
	The Allegheny City Fert. Wk's, Allegheny, Pa.	Found.	3.20	8.00	7.04	7.04	4.60†	2.99	11.64	7.70	7.70	25.73	342
345	**Universal Phosphate**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	1.00	......	......	....
	The Farmers' Fertilizer Co., Ind'p'lis, Ind.	Found.	1.40	3.50	8.88	8.88	2.56	0.77	11.44	1.39	1.39	14.54	345
347	**All Soluble**	Claimed.	3.50	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	3.50	8.75	8.43	8.43	3.77†	2.45	12.20	6.86*	7.89	27.52	347
350	**Potato, Tobacco and Hop Fertilizer**	Claimed.	2.50	......	8.00	......	1.00	......	9.00	3.00	......	......	....
	Niagara Fertilizer Works, Buffalo, N. Y.	Found.	2.85	7.12	9.60	9.60	2.17	0.65	11.77	2.08	2.08	19.45	350
351	**Four Fold**	Claimed.	2.00	......	7.00	......	1.00	......	8.00	2.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.75	4.38	7.92	7.92	2.05	0.62	9.97	3.32*	3.82	16.74	351
352	**Potato Special**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	6.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	3.00	7.50	7.48	7.48	3.71	1.11	11.19	6.11*	7.03	23.12	352
353	**Royal Wheat Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	M. E. Wheeler & Co., Rutland, Vt.	Found.	1.50	3.75	8.06	8.06	2.81	0.84	10.87	1.95	1.95	14.60	353
354	**Valley Gem Phosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Queen City Fertilizer Co., Cincinnati, O.	Found.	0.95	2.38	11.95	11.95	1.28	0.38	13.23	0.87*	1.00	15.71	354
355	**Mammoth Producer**	Claimed.	1.50	......	......	......		......	9.00	1.50	......	......	....
	The C. B. Fisher Co., Springfield, O.	Found.	0.75	1.88	10.09	10.09	2.49	0.75	12.58	0.75	0.75	13.47	355
358	**Bone, Blood and Potash**	Claimed.	5.00	......	8.00	......	2.00	......	10.00	7.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	4.60	11.50	10.29	10.29	1.66	0.50	11.95	5.59*	6.43	28.72	358
365	**Standard Phosphate**	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	....
	Farmers' Union Fert. Works, Buffalo, N. Y.	Found.	1.80	4.50	8.56	8.56	3.58	1.07	12.14	2.39	2.39	16.52	365
368	**Tobacco Special**	Claimed.	3.00	......	7.00	......	3.00	......	10.00	4.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	2.40	6.00	8.26	8.26	3.25	0.98	11.51	5.28*	6.07	21.31	368

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
369	**Universal Ammoniated Dissolved Bone**.......	Claimed.	2.00	......	8.00	......	1.00	......	10.00	2.00	......	......	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	2.20	5.50	8.11	8.11	2.56	0.77	10.67	2.10	2.10	16.48	369
371	**Harvest Jewel**..............................	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	1.70	4.25	8.05	8.05	2.62	0.79	10.67	1.99	1.99	15.08	371
375	**Capital City Grain and Grass Grower**........	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	.....
	The Columbus Phosphate Co., Columbus, O.	Found.	1.50	3.75	11.90	11.90	2.17	0.65	14.07	1.52	1.52	17.82	375
376	**Club and Grange Formula**..................	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	Farmers' Union Fert. Works, Buffalo, N. Y..	Found.	1.15	2.88	7.17	7.17	3.25	0.98	10.42	1.02	1.02	12.05	376
388	**Ohio Seed Maker with Potash**.............	Claimed.	2.00	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O......	Found.	2.15	5.38	9.58	9.58	3.07	0.92	12.65	1.85	1.85	17.73	388
389	**King Philip Alkaline Guano**................	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Clark's Cove Fertilizer Co., Boston, **Mass.**	Found.	1.25	3.12	8.64	8.64	2.74	0.82	11.38	2.49	2.49	15.07	389
397	**Acidulated Bone with Potash**..............	Claimed.	3.00	......	12.00	......	......	......	14.00	2.00	......	......	.....
	Geo. A. Bell, Wheelersburg, O.	Found.	3.35	8.38	8.51	8.51	4.66	1.40	13.17	2.89	2.89	21.18	397
400	**Guano**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Standard Fertilizer Co., Boston, **Mass.**	Found.	1.45	3.62	8.37	8.37	3.46	1.04	11.83	1.99	1.99	15.02	400
409	**Capital City Special Club Formula**.........	Claimed	1.00	......	12.00	......	1.00	......	13.00	3.00	......	......	.....
	The Columbus Phosphate Co., Columbus, O...	Found.	1.00	2.50	13.18	13.18	2.68	0.80	15.86	1.97	1.97	18.45	409

410	**Sheldon's Empire**	Claimed.	1.15	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Schaal-Sheldon Fert. Co., Erie, Pa.	Found.	1.25	3.12	6.91	6.91	2.17	0.65	9.08	1.91	1.91	12.59	410
415	**Raw Bone and Phosphate**..................	Claimed.	2.00	......	10.00	......	......	......	16.00	1.50	......	......	.....
	Jas. McCallum & Co., Dayton, O.	Found.	2.35	5.88	10.55	10.55	6.46	1.94	17.01	0.27	0.27	18.64	415
420	**Corn and Wheat Special**..................	Claimed.	0.75	......	10.00	......	2.50	......	12.50	1.00	......	......	.....
	The Currie Fertilizer Co., Louisville, Ky....	Found.	1.30	3.25	11.14	11.14	3.25	0.98	14.39	1.18	1.18	16.55	420
422	**Wheat Grower**	Claimed.	1.25	......	10.00	......	2.50	......	12.50	1.50	......	......	.....
	The Currie Fertilizer Co., Louisville, Ky.....	Found.	1.30	3.25	11.19	11.19	2.81	0.84	14.00	1.25*	1.44	16.72	422
423	**Ammoniated Dissolved Bone**................	Claimed.	2.00	......	8.00	......	2.00	......	10.00	3.00	......	......	.....
	The Currie Fertilizer Co., Louisville, Ky. ..	Found.	2.40	6.00	8.44	8.44	3.33	1.00	11.77	3.28	3.28	18.72	423
428	**Buncombe Fertilizer**	Claimed.	2.50	......	13.12	......	13.11	......	26.23	0.23	......	......	.....
	R. Stephens & Co., Ashtabula, O.	Found.	3.05	7.62	12.16	12.16	9.33†	6.06	21.49	0.33	0.33	26.17	428
430	**Extra Fine Ground Bone and Potash, Circle Brand**	Claimed.	2.25	......	6.00	......	......	......	11.00	2.00	......	......	.....
	The Bradley Fertilizer Co., Boston, Mass...	Found.	2.60	6.50	8.51	8.51	6.97†	4.53	15.48	2.22	2.22	21.76	430
431	**Grain King**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	4.00	......	......	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.65	4.12	8.56	8.56	1.53	0.46	10.09	4.34	4.34	17.48	431
433	**Meat, Blood and Bone with Potash**..........	Claimed.	4.00	......	8.00	......	2.00	......	10.00	8.00	......	......	.....
	Walker, Stratman & Co., Pittsburg, Pa. ..	Found.	3.05	7.62	8.25	8.25	3.13	0.94	11.38	9.33*	10.73	27.54	433
434	**Vegetable Bone**	Claimed.	4.00	......	8.00	......	1.00	......	9.00	7.00	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	3.65	9.12	7.22	7.22	2.17	0.65	9.39	7.53	7.53	24.52	434
436	**Banner Phosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	2.00	......	......	.....
	The Allegheny City Fert. Wks., Allegheny, Pa.	Found.	1.10	2.75	8.76	8.76	1.98	0.59	10.74	1.64	1.64	13.74	436
445	**Bone, Blood and Potash**..................	Claimed.	1.50	......	9.00	......	......	......	......	1.50	......	......	.....
	The Dayton Fertilizer Co., Dayton, O.	Found.	2.00	5.00	9.09	9.09	1.40	0.42	10.49	1.76*	2.02	16.53	445
446	**A Brand**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Standard Fertilizer Co., Boston, Mass...	Found.	1.10	2.75	8.76	8.76	2.81	0.84	11.57	1.16	1.16	13.51	446

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* From sulphate.

† From animal matter.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
447	**Special for Potatoes**......................	Claimed.	1.00	......	8.00	......	1.00	......	9.00	3.86	......	......	.....
	The Standard Fertilizer Co., Boston, Mass...	Found.	1.15	2.88	8.57	8.57	2.56	0.77	11.13	3.28	3.28	15.50	447
448	**Double Eagle Phosphate**..................	Claimed.	2.00	......	8.00	......	2.64	......	10.64	1.00	......	......	.....
	The Baugh & Sons Co., Philadelphia, Pa. ..	Found.	2.25	5.62	9.02	9.02	2.17	0.65	11.19	1.62	1.62	16.91	448
450	**Crop Multiplier**	Claimed.	2.50	......	9.00	......	3.00	......	12.00	1.50	......	......	.....
	The St. Louis Sanitary Co., St. Louis, Mo. ..	Found.	2.75	6.88	7.55	7.55	3.58	1.07	11.13	2.12	2.12	17.62	450
451	**Broadax**	Claimed.	3.00	......	5.00	......	2.00	......	7.00	1.00	......	......	.....
	The St. Louis Sanitary Co., St. Louis, Mo....	Found.	4.10	10.25	4.35	4.35	3.64	1.09	7.99	1.16	1.16	16.85	451
459	**Mohawk Fertilizer**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	0.95	2.38	7.67	7.67	2.36	0.71	10.03	1.10	1.10	11.86	459
460	**Urbana Bone Phosphate and Potash**.........	Claimed.	1.00	......	9.00	......	1.00	......	11.00	1.00	......	......	.....
	The Loudenback Fertilizer Co., Urbana, O. ..	Found.	0.75	1.88	7.48	7.48	3.71	1.11	11.19	0.81	0.81	11.28	460
462	**Special**	Claimed.	2.50	......	12.00	......	3.00	......	15.00	1.50	......	......	.....
	McLean, Dahl & Co., Washington C. H., O.	Found.	2.73	6.82	8.76	8.76	6.01†	3.91	14.77	2.93	2.93	22.42	462
463	**Potato and Tobacco Fertilizer**..............	Claimed.	3.00	......	10.00	......	......	......	......	4.00	......	......	.....
	The Kaufman Fert. Co., Indianapolis, Ind...	Found.	3.45	8.62	8.95	8.95	2.56	0.77	11.51	0.89	0.89	19.23	463
466	**Ox Bone, Ammonia and Potash**.............	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	.....
	The Tennessee Chemical Co., Nashville, Tenn.	Found.	1.10	2.75	13.74	13.74	2.05	0.61	15.79	1.02*	1.17	18.27	466

470	**Special Wheat Fertilizer**	Claimed.	3.50	......	9.00	......	3.00	......	12.00	2.00	......	......	.....
	The Kaufman Fert. Co., Indianapolis, Ind...	Found.	3.35	8.38	5.30	5.30	3.07	0.92	8.37	0.85	0.85	15.45	470
471	**Soluble Bone and Potash**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	1.50	......	......	.....
	The Kaufman Fert. Co., Indianapolis, Ind...	Found.	2.25	5.62	6.58	6.58	2.56	0.77	9.14	0.56	0.56	13.53	471
472	**Banner Crop Grower**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	1.00	......	......	.....
	The Kaufman Fert. Co., Indianapolis, Ind...	Found.	1.10	2.75	5.25	5.25	1.72	0.52	6.97	0.39	0.39	8.91	472
477	**Superphosphate and Potash**	Claimed	1.00	......	6.00	......	1.00	......	8.00	2.00	......	......	.....
	The Muskingum Valley Fert. Co., Marietta, O.	Found.	1.65	4.12	4.48	4.48	1.40	0.42	5.88	2.28	2.28	11.30	477
478	**Dissolved Bone**	Claimed.	0.50	......	5.00	......	1.00	......	6.00	1.00	......	......	.....
	The Muskingum Valley Fert. Co., Marietta, O.	Found.	1.40	3.50	4.79	4.79	1.28	0.38	6.07	1.33	1.33	10.00	478
479	**Urbana Sweepstakes Bone**	Claimed.	2.00	......	8.00	......	1.00	......	10.00	2.00	......	......	.....
	The Loudenback Fertilizer Co., Urbana, O. ..	Found.	2.60	6.50	8.69	8.69	3.71	1.11	12.40	2.20*	2.53	18.83	479
481	**Economizer**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Zell Guano Co., Baltimore, Md........	Found.	1.50	3.75	8.68	8.68	3.33	1.00	12.01	1.93	1.93	15.36	481
483	**Pure Bone with Potash**	Claimed.	3.00	......	14.00	......	2.00	......	14.00	3.00	......	......	.....
	The Pittsburg Provision Co., Pittsburg, Pa..	Found.	3.60	9.00	6.40	6.40	8.95†	5.82	15.35	2.82*	3.24	24.46	483
485	**Keystone Fertilizer**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	1.50	......	......	.....
	The Pittsburg Provision Co., Pittsburg, Pa..	Found.	2.50	6.25	6.06	6.06	6.27	1.88	12.33	1.16	1.16	15.35	485
488	**Urbana Special Prize Potato and Tobacco Grower**	Claimed.	2.00	......	10.00	......	1.00	......	12.00	4.00	......	......	.....
	The Loudenback Fertilizer Co., Urbana, O. ..	Found.	2.05	5.12	9.33	9.33	2.74	0.82	12.07	4.41*	5.07	20.34	488
489	**Advance Phosphate**	Claimed.	1.50	......	8.50	......	1.50	......	10.00	1.25	......	......	.....
	The Queen City Fertilizer Co., Cincinnati, O.	Found.	2.30	5.75	7.87	7.87	6.33†	4.11	14.20	1.10*	1.26	18.99	489
490	**Pure Bone Phosphate**	Claimed.	3.00	......	9.00	......	4.00	......	13.00	2.75	......	......	.....
	The Queen City Fertilizer Co., Cincinnati, O.	Found.	3.85	9.62	6.25	6.25	6.40†	4.16	12.65	2.51*	2.89	22.92	490

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* From sulphate.

† From animal matter.

TABLE I.—Mixied Fertlizers, with Potash—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
493	**Wheat Grower**	Claimed.	2.00	......	8.00	......	1.00	......	10.00	2.00	......	......	.....
	The Globe Fertilizer Co., Louisville, Ky....	Found.	2.00	5.00	11.00	11.00	2.11	0.63	13.11	2.06*	2.37	19.00	493
495	**Soluble Pacific Guano**....................	Claimed.	2.50	......	8.00	......	1.00	......	9.00	1.50	......	......	.....
	The Pacific Guano Co., Boston, Mass......	Found.	2.35	5.88	7.80	7.80	2.87	0.86	10.67	1.56	1.56	16.10	495
496	**Superior Superphosphate**	Claimed.	1.00	......	7.00	......	......	......	7.00	1.00	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	1.20	3.00	7.29	7.29	1.92	0.58	9.21	1.14	1.14	12.01	496
497	**Wheat Grower No. 1**........................	Claimed.	2.00	......	8.00	......	......	......	......	1.50	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O......	Found.	3.20	8.00	6.78	6.78	6.97†	4.53	13.75	2.45*	2.82	22.13	497
506	**Imperial Compound**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	2.00	......	......	.....
	The Detrick Fert. & Chem. Co., Balto., Md..	Found.	1.20	3.00	9.25	9.25	3.33	1.00	12.58	1.99	1.99	15.24	506
509	**Excellenza**	Claimed.	2.00	......	8.00	......	......	......	......	2.00	......	......	.....
	Jno. S. Reese & Co., Baltimore, Md........	Found.	1.40	3.50	10.05	10.05	3.00	0.90	13.05	2.08	2.08	16.53	509
511	**Potato Manure**	Claimed.	3.00	......	9.00	......	2.00	......	11.00	6.00	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	2.15	5.38	9.98	9.98	1.85	0.56	11.83	5.74	5.74	21.66	511
512	**Normal Bone Phosphate**....................	Claimed.	1.25	......	8.50	......	1.00	......	9.50	1.50	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	1.30	3.25	8.70	8.70	1.79	0.54	10.49	2.10	2.10	14.59	512
515	**Potash Special**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	4.00	......	......	.....
	The Chicago Fertilizer Co., Chicago, Ill....	Found.	1.05	2.62	9.08	9.08	1.72	0.52	10.80	4.41*	5.07	17.29	515

516	**Special Blood and Potash Mixture**...........	Claimed.	1.00	......	8.00	......	......	......	......	4.00	......	......	.....
	The Buckeye Phosphate Co., Columbus, O..	Found.	1.10	2.75	8.38	8.38	1.85	0.56	10.23	4.74*	5.45	17.14	516
517	**Potash Fertilizer**	Claimed.	1.00	......	8.00	......	3.00	......	11.00	4.00	......	......	.....
	The Hardy Packing Co., Chicago, Ill.......	Found.	1.25	3.12	8.70	8.70	1.79	0.54	10.49	4.18*	4.81	17.17	517

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* From sulphate.

† From animal matter.

TABLE II.—MIXED FERTILIZERS, WITHOUT POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
5	**Ohio Seed Maker**	Claimed.	2.00	......	10.00	......	2.00	......	12.00	......	......	......	....
	The Cleveland Dryer Co., Cleveland, O.	Found.	2.00	5.00	10.05	10.05	3.25	0.98	13.30	......	......	16.03	5
53	**Ruby Phosphate**	Claimed.	1.00	......	12.00	......	......	......	14.00	......	......	......	....
	James McCallum & Co., Dayton, O........	Found.	0.50	1.25	15.22	15.22	0.51	0.15	15.73	......	......	16.62	53
58	**Acidulated Bone**	Claimed.	1.00	......	9.00	......	3.00	......	12.00	......	......	......	....
	The E. Rauh & Sons Fert. Co., Ind'p'lis., Ind.	Found.	1.45	3.62	7.99	7.99	2.81	0.84	10.80	......	......	12.45	58
61	**Diamond Cereala Soluble Bone**............	Claimed.	0.50	......	15.00	......	1.00	......	16.00	......	......	......	....
	The Walton Fertilizer Co., Cleveland, O....	Found.	0.65	1.62	15.36	15.36	1.53	0.46	16.89	......	......	17.44	61
64	**Jewel Phosphate**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	......	......	......	....
	The Jones Fertilizing Co., Cincinnati, O....	Found.	1.20	3.00	9.77	9.77	2.56	0.77	12.33	......	......	13.54	64
84	**Acidulated Bone**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	......	......	......	....
	The Northwestern Fert. Co., Chicago, Ill....	Found.	1.20	3.00	10.18	10.18	2.87	0.86	13.05	......	......	14.04	84
88	**Sure Growth Phosphate**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	......	......	......	....
	Packers' Fertilizer Association, Chicago, Ill.	Found.	1.25	3.12	9.52	9.52	3.46	1.04	12.98	......	......	13.68	88
96	**Guano Fertilizer**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	......	......	......	....
	The Pittsburg Provision Co., Pittsburg, Pa..	Found.	2.20	5.50	6.07	6.07	5.31	1.59	11.38	......	......	13.16	96
191	**Entire Bone Phosphate**	Claimed.	1.00	......	10.00	......	3.00	......	13.00	......	......	......	....
	The Western Union Chem. Co. Cleveland, O.	Found.	1.05	2.62	10.11	10.11	2.94	0.88	13.05	......	......	13.61	191

315	**Bone and Meat** *The J.L.& H. Stadler R. & F.Co.,Cleveland,O*	Claimed.	2.50	......	6.00	......	5.00	......	11.00	......	......	......	......
		Found.	2.60	6.50	6.45	6.45	3.07†	2.00	9.52	......	......	14.95	315
327	***Prairie Phosphate*** *The Northwestern Fert. Co., Chicago, Ill*	Claimed.	2.00	......	10.00	......	2.00	12.00	......	......	......	......	......
		Found.	2.15	5.38	8.43	8.43	3.46	1.04	11.89	......	......	14.85	327
344	**Half and Half** The Farmers' Fertilizer Co., Ind'p'lis., Ind	Claimed.	2.50	......	7.00	......	4.00	......	11.00	......	......	......	......
		Found.	2.75	6.88	7.17	7.17	4.66†	3.03	11.83	......	......	17.08	344
346	**Dissolved Bone** The Farmers' Fertilizer Co., Ind'p'lis., Ind	Claimed.	1.50	......	8.00	......	2.00	......	10.00	......	......	......	......
		Found.	1.65	4.12	8.12	8.12	2.68	0.80	10.80	......	......	13.04	346
377	**Half Pure Raw Bone and Half Pure Bone Phosphate** The E. Rauh & Sons Fert. Co., Ind'p'lis., Ind.	Claimed.	2.00	......	12.00	......	10.00	......	22.00	......	......	......	......
		Found.	1.80	4.50	11.20	11.20	9.59	2.88	20.79	......	......	18.58	377
380	**Old Honesty Phosphate** The Royal Fertilizer Co., Cleveland, O	Claimed.	2.00	......	10.00	......	......	......	12.00	......	......	......	......
		Found.	2.10	5.25	9.01	9.01	3.64	1.09	12.65	......	......	15.35	380
404	**Wheat Special Fertilizer** The I. P. Thomas & Son Co., Philada., Pa	Claimed.	0.50	......	12.00	......	......	......	12.00	......	......	......	......
		Found.	0.85	2.12	11.96	11.96	3.07	0.92	15.03	......	......	15.00	404
406	**Raw and Dissolved Bone** The I. P. Thomas & Son Co., Phila'd'a, Pa	Claimed.	2.00	......	8.00	......	10.00	......	......	......	......	......	......
		Found.	1.25	3.12	9.28	9.28	13.43	4.03	22.71	......	......	16.43	406
414	**Bone and Phosphate Mixture** The Jarecki Chemical Co., Sandusky, O	Claimed.	2.50	......	......	......	......	......	15.00	......	......	......	......
		Found.	1.70	4.25	10.19	10.19	6.57	1.97	16.76	......	......	16.41	414
424	**Golden Harvest Bone Meal** The Globe Fertilizer Co., Louisville, Ky	Claimed.	3.00	......	10.00	......	......	......	......	......	......	......	......
		Found.	2.65	6.62	11.06	11.06	3.39	1.02	14.45	......	......	18.70	424
468	**Dissolved Bone** The Rasin-Monumental Co., Baltimore, Md	Claimed.	2.00	......	10.00	......	1.50	......	11.50	......	......	......	......
		Found.	2.05	5.12	10.80	10.80	3.71	1.11	14.51	......	......	17.03	468

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† From animal matter.

TABLE III.—DISSOLVED BONE.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
100	**Acidulated Bone Meal**......................	Claimed.	2.00	......	11.00	......	......	......	18.00	......	......	......	....
	The Armour Fertilizer Works, Chicago, Ill..	Found.	2.25	5.62	15.02	15.02	5.25†	3.41	20.27	......	......	24.05	100
166	**Bone Meal**	Claimed.	1.00	......	......	......	......	......	20.00	......	......	......	....
	The Louisville Fertilizer Co., Louisville, Ky.	Found.	1.25	3.12	12.16	12.16	9.39†	6.10	21.55	......	......	21.38	166
294	**Half and Half**............................	Claimed.	2.50	......	6.00	......	10.00	......	20.00	......	......	......	....
	The Western Union Chem. Co., Cleveland, O.	Found.	2.30	5.75	9.01	9.01	7.55†	4.91	16.56	......	......	19.67	294
308	**Carteret Ground Bone**......................	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	1.60	4.00	6.08	6.08	9.97†	6.48	16.05	......	......	16.56	308
331	**Fine Steamed Bone**........	Claimed.	2.00	......	......	......	......	......	19.00	......	......	......	....
	The Bucyrus Fertilizer Co., Bucyrus, O. ..	Found.	3.25	8.12	8.26	8.26	12.40†	8.06	20.66	......	......	24.44	331
343	**Pure Bone Meal**..........................	Claimed.	2.00	......	7.00	......	13.00	......	......	......	......	......	....
	The Farmers' Fert. Co., Indianapolis, Ind...	Found.	2.00	5.00	7.75	7.75	13.36†	8.68	21.11	......	......	21.43	343
357	**Abattoir Bone Dust**.......................	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	....
	The Bradley Fertilizer Co., Boston, Mass. ..	Found.	2.60	6.50	7.29	7.29	7.61†	4.95	14.90	......	......	18.74	357
359	**Bone and Blood**...........................	Claimed.	7.00	......	5.00	......	4.00	......	10.00	......	......	......	....
	The Armour Fertilizer Works, Chicago, Ill..	Found.	6.65	16.62	5.43	5.43	2.30†	1.50	7.73	......	......	23.55	359
379	**Pure Bone Meal**..........................	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	....
	The Pacific Guano Co., Boston, Mass......	Found.	3.00	7.50	8.13	8.13	11.06†	7.19	19.19	......	......	22.82	379

385	**Ground Bone**	Claimed.	3.00	......	......	......	......	......	22.00	......	......	......	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found.	2.70	6.75	8.39	8.39	8.24†	5.36	16.63	......	......	20.50	385
396	**Chicago Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	Packers' Fertilizer Association, Chicago, Ill.	Found.	3.05	7.62	9.92	9.92	11.70†	7.60	21.62	......	......	25.14	396
458	**Uncas Bone Meal**	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	1.60	4.00	6.41	6.41	9.84†	6.40	16.25	......	......	16.81	458
498	**Wheat Grower No. 2**	Claimed.	2.00	......	8.00	......	......	......	......	......	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O.	Found.	3.05	7.62	6.07	6.07	6.33†	4.11	12.40	......	......	17.80	498
502	**Quinnipiac Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	2.85	7.12	6.08	6.08	11.06†	7.19	17.14	......	......	20.39	502
504	**Ohio Valley Bone Dust**	Claimed.	3.80	......	......	......	......	......	17.00	......	......	......	.....
	Wheeling Butchers' Ass'n., Wheeling, W. Va.	Found.	4.25	10.62	8.06	8.06	9.59†	6.23	17.65	......	......	24.91	504

† From animal matter.

TABLE IV.—ROCK PHOSPHATE.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
6	**Horsehead Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	......	......	10.55	10.55	1.85	......	12.40	......	......	10.55	6
9	**Erie Fertilizer**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	......	......	12.28	12.28	1.85	......	14.13	......	......	12.28	9
15	**Banner Wheat Grower**	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The Packers' Union Fert. Co., N. Y., N. Y.	Found.	......	......	10.92	10.92	1.66	......	12.58	......	......	10.92	15
20	**Diamond S**	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	Swift & Company, Chicago, Ill.	Found.	......	......	10.10	10.10	2.17	......	12.27	......	......	10.10	20
28	**Acid Phosphate**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	S. M. Hess & Bro., Philadelphia, Pa.	Found.	......	......	9.84	9.84	0.83	......	10.67	......	......	9.84	28
38	**Acid Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Pacific Guano Co., Boston, Mass.	Found.	......	......	12.16	12.16	1.53	......	13.69	......	......	12.16	38
51	**Acorn Brand Acid Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	......	......	14.32	14.32	3.39	......	17.71	......	......	14.32	51
59	**C. O. D. Phosphate**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Jarecki Chemical Co., Sandusky, O.	Found.	......	......	14.07	14.07	3.64	......	17.71	......	......	14.07	59
60	**Reliable Dissolved Bone**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Walton Fertilizer Co., Cleveland, O.	Found.	......	......	13.18	13.18	3.77	......	16.95	......	......	13.18	60

65	**Acid Phosphate**	Claimed.	......	......	8.00	......	2.00	......	10.00	......	......	......	......
	The Jones Fertilizing Co., Cincinnati, O.	Found.	......	......	10.41	10.41	0.90	......	11.31	......	......	10.41	65
66	**Electrical Dissolved Bone**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	M. E. Wheeler & Co., Rutland, Vt.	Found.	......	......	14.07	14.07	2.56	......	16.63	......	......	14.07	66
69	**Acid Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	......
	The Bradley Fert. Co., Boston, Mass.	Found.	......	......	11.31	11.31	2.05	......	13.36	......	......	11.31	69
71	**XXX Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The Cleveland Dryer Co., Cleveland, O.	Found.	......	......	13.38	13.38	2.87	......	16.25	......	......	13.38	71
75	**Atlas Bone Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The Clark's Cove Fert. Co., Boston, Mass.	Found.	......	......	13.69	13.69	3.07	......	16.76	......	......	13.69	75
76	**Sovereign Acid Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	......
	The Clark's Cove Fert. Co., Boston, Mass.	Found.	......	......	11.19	11.19	1.79	......	12.98	......	......	11.19	76
77	**Dissolved Bone Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The Zell Guano Co., Baltimore, Md.	Found.	......	......	14.90	14.90	2.43	......	17.33	......	......	14.90	77
78	**Dissolved Bone Phosphate**	Claimed.	......	......	10.00	......	......	......	12.00	......	......	......	......
	The Bowker Fertilizer Co., Boston, Mass.	Found.	......	......	12.10	12.10	2.87	......	14.97	......	......	12.10	78
89	**Soluble Phosphate**	Claimed.	......	......	10.00	......	......	......	10.00	......	......	......	......
	Packers' Fertilizer Association, Chicago, Ill.	Found.	......	......	11.07	11.07	2.23	......	13.30	......	......	11.07	89
92	**Electric**	Claimed.	......	......	11.00	......	2.00	......	13.00	......	......	......	......
	L. Frank & Sons, Zanesville, O.	Found.	......	......	12.87	12.87	2.74	......	15.61	......	......	12.87	92
94	**S. C. Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The I. P. Thomas & Son Co., Philada., Pa.	Found.	......	......	15.97	15.97	2.58	......	18.55	......	......	15.97	94
97	**Dissolved Bone**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The Great Eastern Fert. Co., Rutland, Vt.	Found.	......	......	14.00	14.00	3.07	......	17.07	......	......	14.00	97
105	**Cereal Phosphate**	Claimed.	......	......	10.00	......	3.00	......	13.00	......	......	......	......
	The Armour Fertilizer Works, Chicago, Ill.	Found.	......	......	14.97	14.97	1.46	......	16.43	......	......	14.97	105
108	**Acid Phosphate**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	......
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	......	......	14.13	14.13	2.30	......	16.43	......	......	14.13	108

TABLE IV.—ROCK PHOSPHATE—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
111	**International Phosphate**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Western Union Chem. Co., Cleveland, O.	Found.	......	......	12.48	12.48	2.74	......	15.22	......	......	12.48	111
114	**Acid Phosphate**	Claimed.	......	......	12.00	......	......	......	13.00	......	......	......	.....
	Michigan Carbon Works, Detroit, Mich....	Found.	......	......	12.34	12.34	2.94	......	15.28	......	......	12.34	114
115	**Banner Dissolved Bone**....................	Claimed.	......	......	30.00	......	......	......	32.00	......	......	......	.....
	Michigan Carbon Works, Detroit, Mich....	Found.	......	......	32.69	32.69	0.51	......	33.20	......	......	32.69	115
116	**Soluble Bone**	Claimed.	......	......	14.00	......	......	......	15.00	......	......	......	.....
	The Bowker Fert. Co., Boston, Mass......	Found.	......	......	16.88	16.88	0.77	......	17.65	......	......	16.88	116
121	**Dissolved Bone Phosphate of Lime**..........	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Pacific Guano Co., Boston, Mass......	Found.	......	......	14.33	14.33	2.56	......	16.89	......	......	14.33	121
124	**Pure Acid Phosphate**......................	Claimed.	......	......	16.00	......	1.00	......	17.00	......	......	......	.....
	Swift & Company, Chicago, Ill............	Found.	......	......	17.60	17.60	1.21	......	18.81	......	......	17.60	124
140	**Dissolved Bone**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	......	......	14.39	14.39	2.43	......	16.82	......	......	14.39	140
143	**Dissolved Bone, Justice Brand**..............	Claimed.	......	......	12.00	......	2.00	......	14.00	......	......	......	.....
	The Bradley Fert. Co., Boston, Mass......	Found.	......	......	13.68	13.68	2.05	......	15.73	......	......	13.68	143
153	**Economy**	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The M. Hamm Co., Washington C. H., O....	Found.	......	......	10.58	10.58	3.39	......	13.97	......	......	10.58	153

155	**Superphosphate**	Claimed.	......	......	13.00	......	1.00	......	14.00	......	......	......	.....
	The Buckeye Phosphate Co., Columbus, O.	Found.	......	......	10.91	10.91	2.32	......	13.23	......	......	10.91	155
157	**Acid Phosphate**	Claimed.	......	......	9.00	......	1.00	......	10.00	......	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	......	......	10.48	10.48	1.59	......	12.07	......	......	10.48	157
158	**Superior Phosphate**	Claimed.	......	......	13.00	......	1.00	......	14.00	......	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	......	......	12.92	12.92	2.30	......	15.22	......	......	12.92	158
173	**Acid Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Standard Fertilizer Co., Boston, Mass.	Found.	......	......	9.92	9.92	3.00	......	12.92	......	......	9.92	173
192	**Special Dissolved Bone Phosphate**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	The Walton Fertilizer Co., Cleveland, O.	Found.	......	......	13.69	13.69	1.66	......	15.35	......	......	13.69	192
199	**Acid Phosphate**	Claimed.	......	......	10.50	......	......	......	11.00	......	......	......	.....
	Earl Herrick, Cleveland, O.	Found.	......	......	12.03	12.03	1.40	......	13.43	......	......	12.03	199
201	**Red Line Phosphate**	Claimed.	......	......	14.00	......	......	......	15.00	......	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	......	......	8.38	8.38	3.19	......	11.57	......	......	8.38	201
204	**Bull Dog Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Western Union Chem. Co., Cleveland, O.	Found.	......	......	11.52	11.52	1.46	......	12.98	......	......	11.52	204
207	**Economical Phosphate**	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N.Y.	Found.	......	......	11.32	11.32	2.17	......	13.49	......	......	11.32	207
212	**Plain Superphosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Quinnipiac Co., Boston, Mass.	Found.	......	......	10.74	10.74	2.11	......	12.85	......	......	10.74	212
213	**Ox High Grade Dissolved Bone**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Tennessee Chem. Co., Nashville, Tenn.	Found.	......	......	15.61	15.61	1.08	......	16.69	......	......	15.61	213
215	**Wolverine Phosphate**	Claimed.	......	......	10.00	......	......	......	11.00	......	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	......	......	10.86	10.86	1.21	......	12.07	......	......	10.86	215
228	**Acidulated Bone**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Packers' Union Fert. Co., New York, N. Y.	Found.	......	......	14.90	14.90	1.79	......	16.69	......	......	14.90	228
229	**Queen City Phosphate**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	Niagara Fert. Works, Buffalo, N. Y.	Found.	......	......	13.11	13.11	1.53	......	14.64	......	......	13.11	229

TABLE IV.—Rock Phosphate—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
234	**U. S. Pure Phosphate**......................	Claimed.	......	......	16.00	......	......	......	16.00	......	......	......	.....
	The United States Fert. Co., Wheeling, W. Va.	Found.	......	......	15.04	15.04	0.57	......	15.61	......	......	15.04	234
251	**Acid Phosphate**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Rasin-Monumental Co., Baltimore, Md..	Found.	......	......	14.90	14.90	0.38	......	15.28	......	......	14.90	251
254	**Elm Phosphate**............................	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	John S. Reese & Co., Baltimore, Md........	Found.	......	......	13.25	13.25	1.72	......	14.97	......	......	13.25	254
258	**Acid Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Cumberland Bone Phos. Co., Bost., Mass.	Found.	......	......	11.07	11.07	2.49	......	13.56	......	......	11.07	258
259	**Dissolved Bone Phosphate**..................	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Cumberland Bone Phos. Co., Bost., Mass.	Found.	......	......	13.24	13.24	2.49	......	15.73	......	......	13.24	259
263	**Dissolved Bone Phosphate**..................	Claimed.	......	......	12.00	......	1.00	......	......	......	......	......	.....
	Strecker Bros., Marietta, O..............	Found.	......	......	12.53	12.53	1.21	......	13.74	......	......	12.53	263
264	**Quick Acting Phosphate**..................	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Northwestern Fert. Co., Chicago, Ill...	Found.	......	......	10.55	10.55	2.43	......	12.98	......	......	10.55	264
265	**Dissolved S. C. Phosphate**.................	Claimed.	......	......	12.00	......	2.00	......	14.00	......	......	......	.....
	The Zell Guano Co., Baltimore, Md........	Found.	......	......	10.87	10.87	3.13	......	14.00	......	......	10.87	265
266	**Dissolved Phosphate of Lime**...............	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	John S. Reese & Co., Baltimore, Md........	Found.	......	......	9.71	9.71	2.56	......	12.27	......	......	9.71	266

278	**No. 1 Dissolved Bone**	Claimed.	......	......	14.00	......	0.75	......	14.75	......	......	......	......
	The Springfield Fert. Co., Springfield, O.	Found.	......	......	13.38	13.38	2.87	......	16.25	......	......	13.38	278
279	**No. 4 Dissolved Bone**	Claimed.	......	......	8.00	......	0.75	......	8.75	......	......	......	......
	The Springfield Fert. Co., Springfield, O.	Found.	......	......	9.56	9.56	1.53	......	11.09	......	......	9.56	279
291	**Soluble Dissolved Bone**	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	......
	The Quinnipiac Co., Boston, Mass.	Found.	......	......	14.20	14.20	2.62	......	16.82	......	......	14.20	291
303	**Dissolved Bone or Acid Phosphate**	Claimed.	......	......	12.00	......	......	......	13.00	......	......	......	......
	The Read Fertilizer Co., New York, N. Y.	Found.	......	......	14.65	14.65	2.36	......	17.01	......	......	14.65	303
306	**Dissolved Bone Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	......
	The Williams & Clark Fert. Co., N. Y., N. Y.	Found.	......	......	10.81	10.81	2.49	......	13.30	......	......	10.81	306
311	**Economy Fertilizer**	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	......
	G. W. Rickard, Medina, O.	Found.	......	......	9.98	9.98	9.78	......	19.76	......	......	9.98	311
312	**Dissolved Bone**	Claimed.	......	......	16.00	......	1.00	......	......	......	......	......	......
	G. W. Rickard, Medina, O.	Found.	......	......	17.53	17.53	1.46	......	18.99	......	......	17.53	312
317	**Apex Bone Phosphate**	Claimed.	......	......	9.00	......	......	......	11.00	......	......	......	......
	The Bowker Fert. Co., Boston, Mass.	Found.	......	......	10.92	10.92	1.53	......	12.45	......	......	10.92	317
321	**Southern Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	......
	The Hardy Packing Co., Chicago, Ill.	Found.	......	......	9.14	9.14	1.66	......	10.80	......	......	9.14	321
322	**Capital City Wheat Grower**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	......
	The Columbus Phosphate Co., Columbus, O.	Found.	......	......	16.63	16.63	1.15	......	17.78	......	......	16.63	322
329	**Alliance Superphosphate**	Claimed.	......	......	10.00	......	......	......	12.00	......	......	......	......
	The Royal Fertilizer Co., Cleveland, O.	Found.	......	......	10.88	10.88	2.23	......	13.11	......	......	10.88	329
335	**Dissolved Bone**	Claimed.	......	......	13.00	......	1.00	......	14.00	......	......	......	......
	The Bucyrus Fert. Co., Bucyrus, O.	Found.	......	......	12.41	12.41	3.13	......	15.54	......	......	12.41	335
336	**Dissolved Bone No. 2**	Claimed.	......	......	7.50	......	0.50	......	8.00	......	......	......	......
	The Bucyrus Fert. Co., Bucyrus, O.	Found.	......	......	7.26	7.26	2.81	......	10.07	......	......	7.26	336

TABLE IV.—Rock Phosphate—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
340	**Clover Leaf**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	McWha & Sturgeon, Steubenville, O.	Found.	......	......	13.30	13.30	3.52	......	16.82	......	......	13.30	340
348	**Star Phosphate**	Claimed.	......	......	12.00	......	2.00	......	16.00	......	......	......	.....
	The Armour Fert. Works, Chicago, Ill.	Found.	......	......	15.73	15.73	1.28	......	17.01	......	......	15.73	348
349	**Dissolved Bone Phosphate**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	Niagara Fertilizer Works, Buffalo, N. Y.	Found.	......	......	13.94	13.94	1.34	......	15.28	......	......	13.94	349
363	**Dissolved Bone Phosphate**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	Farmers' Union Fert. Wks., Buffalo, N. Y.	Found.	......	......	12.92	12.92	2.36	......	15.28	......	......	12.92	363
373	**Standard Phosphate**	Claimed.	......	......	9.00	......	1.00	......	10.00	......	......	......	.....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	......	......	9.66	9.66	1.85	......	11.51	......	......	9.66	373
383	**Wisdom's Choice**	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	M. E. Wheeler & Co., Rutland, Vt.	Found.	......	......	10.81	10.81	3.13	......	13.94	......	......	10.81	383
390	**No. 1 Acid Phosphate**	Claimed.	......	......	13.00	......	......	......	14.00	......	......	......	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	......	......	10.68	10.68	2.94	......	13.62	......	......	10.68	390
391	**Capital City Superphosphate**	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	.....
	The Columbus Phosphate Co., Columbus, O.	Found.	......	......	12.53	12.53	3.33	......	15.86	......	......	12.53	391
393	**Bear High Grade Dissolved Bone**	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Continental Fert. Co., Nashville, Tenn.	Found.	......	......	14.53	14.53	1.72	......	16.25	......	......	14.53	393

395	**Dissolved Bone Phosphate**..................	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The G. Ober & Sons Co., Baltimore, Md....	Found.	......	......	15.34	15.34	1.59	......	16.93	......	......	15.34	395
401	**Dissolved Bone Phosphate**..................	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Standard Fert. Co., Boston, Mass......	Found.	......	......	13.24	13.24	1.34	......	14.58	......	......	13.24	401
402	**Columbus Special**..........................	Claimed.	......	......	10.00	......	2.00	......	12.00	......	......	......	.....
	The Great Eastern Fert. Co., Rutland, Vt..	Found.	......	......	10.55	10.55	2.94	......	13.49	......	......	10.55	402
405	**Dissolved Phosphate**.........................	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The I. P. Thomas & Son Co., Philada., Pa...	Found.	......	......	11.45	11.45	5.18	......	16.63	......	......	11.45	405
407	**Dissolved Bone Black, Wheat Special**.........	Claimed.	......	......	16.00	......	1.00	......	17.00	......	......	......	.....
	The Jarecki Chemical Co., Sandusky, O....	Found.	......	......	16.44	16.44	0.70	......	17.14	......	......	16.44	407
411	**Dissolved Bone**..............................	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The Schaal-Sheldon Fert. Co., Erie, Pa......	Found.	......	......	8.76	8.76	5.88	......	14.64	......	......	8.76	411
417	**Tennessee Phosphate**	Claimed.	......	......	13.00	......	1.00	......	14.00	......	......	......	.....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	......	......	10.42	10.42	1.98	......	12.52	......	......	10.42	417
421	**Acid Phosphate**............................	Claimed.	......	......	13.50	......	2.50	......	16.00	......	......	......	.....
	The Currie Fert. Co., Louisville, Ky......	Found.	......	......	13.88	13.88	2.94	......	16.82	......	......	13.88	421
426	**Eagle Phosphate**...........................	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	.....
	The Louisville Fert. Co., Louisville, Ky.....	Found.	......	......	11.45	11.45	1.40	......	12.85	......	......	11.45	426
429	**Soluble Dissolved Bone**.....................	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	.....
	The Bradley Fertilizer Co., Boston, Mass....	Found.	......	......	11.96	11.96	2.11	......	14.07	......	......	11.96	429
443	**Critchfield's Standard Phosphate**...........	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	.....
	The Tennessee Chem. Co., Nashville, Tenn..	Found.	......	......	14.64	14.64	1.28	......	15.92	......	......	14.64	443
444	**Extra Superphosphate**......................	Claimed.	......	......	14.00	......	......	......	......	......	......	......	.....
	The Buckeye Phos. Co., Columbus, O......	Found.	......	......	12.99	12.99	1.46	......	14.45	......	......	12.99	444
449	**High Grade Superphosphate**................	Claimed.	......	......	14.00	......	3.08	......	17.08	......	......	......	.....
	The Baugh & Sons Co., Philadelphia, Pa....	Found.	......	......	13.82	13.82	2.74	......	16.56	......	......	13.82	449

TABLE IV.—ROCK PHOSPHATE—Concluded.

Record Number	Name of Fertilizer and Address Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
452	**XXtra Acid Phosphate**	Claimed.	......	......	14.00	.....	1.00	......	15.00	......	......	......	.....
	Louis F. Detrick, Baltimore, Md	Found.	......	......	13.30	13.30	2.43	......	15.73	......	......	13.30	452
453	**Acid Phosphate**	Claimed.	......	......	8.00	.....	.....	......	......	......	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O	Found.	......	......	11.06	11.06	2.94	......	14.00	......	......	11.06	453
454	**Unammoniated Wheat Grower**	Claimed.	......	......	12.00	.....	2.00	......	14.00	......	......	......	.....
	M. E. Wheeler & Co., Rutland, Vt	Found.	......	......	12.22	12.22	2.62	......	14.84	......	......	12.22	454
456	**Dissolved Bone Phosphate**	Claimed.	......	......	14.00	.....	1.00	......	15.00	......	......	......	.....
	The Crocker Fert. & Chem. Co., **Buffalo, N.Y.**	Found.	......	......	14.97	14.97	2.81	......	17.78	......	......	14.97	456
461	**Mt. Pleasant Phosphate**	Claimed.	......	......	9.00	.....	.....	......	12.00	......	......	......	.....
	The Chicago Fertilizer Co., Chicago, Ill	Found.	......	......	8.76	8.76	1.79	......	10.55	......	......	8.76	461
464	**Dissolved Bone**	Claimed.	......	......	16.00	.....	1.00	......	17.00	......	......	......	.....
	The M. Hamm Co., Washington C. H., O	Found.	......	......	17.53	17.53	3.13	......	20.66	......	......	17.53	464
469	**10 Percent Acid Phosphate**	Claimed.	......	......	10.00	.....	1.50	......	11.50	......	......	......	.....
	The Rasin-Monumental Co., Baltimore, Md	Found.	......	......	12.79	12.79	1.66	......	14.45	......	......	12.79	469
474	**Unammoniated Wheat Special**	Claimed.	......	......	12.00	.....	2.00	......	14.00	......	......	......	.....
	The Great Eastern Fert. Co., Rutland, Vt	Found.	......	......	13.35	13.35	1.72	......	15.07	......	......	13.35	474
476	**Monarch Dissolved Bone Phosphate**	Claimed.	......	......	10.00	.....	1.00	......	11.00	......	......	......	.....
	The Detrick Fert. & Chem. Co., Balto., Md	Found.	......	......	10.05	10.05	2.87	......	12.92	......	......	10.05	476

486	**Acid Phosphate** The Pittsburg Provision Co., Pittsburg, Pa	Claimed.	......	......	13.00	......	1.00	......	14.00	......	......	......	....
		Found.	......	......	12.98	12.98	1.66	......	14.64	......	......	12.98	486
487	**Urbana Animal Tankage and Guano** The Loudenback Fert. Co., Urbana, O	Claimed.	......	......	9.00	......	1.00	......	11.00	......	......	......	.....
		Found.	......	......	11.51	11.51	4.10	......	15.61	......	......	11.51	487
492	**Soluble Bone** S. M. Hess & Bro., Philadelphia, Pa	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	....
		Found.	......	......	15.22	15.22	0.77	......	15.99	......	......	15.22	492
494	**Erie Queen** Farmers' Union Fert. Wks., Buffalo, N. Y.	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	....
		Found.	......	......	12.61	12.61	2.87	......	15.48	......	......	12.61	494
501	**High Grade Phosphate No. 2** The Seneca Fertilizer Works, Tiffin, O	Claimed.	......	......	16.00	......	......	......	......	......	......	......	....
		Found.	......	......	16.63	16.63	1.21	......	17.84	......	......	16.63	501
503	**Ox XX Acid Phosphate** The Tennessee Chem. Co., Nashville, Tenn.	Claimed.	......	......	10.00	......	1.00	......	11.00	......	......	......	....
		Found.	......	......	11.70	11.70	2.43	......	14.13	......	......	11.70	503
505	**Soluble Bone Phosphate** The Detrick Fert. & Chem. Co., Balto., Md.	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	....
		Found.	......	......	12.02	12.02	2.62	......	14.64	......	......	12.02	505
508	**Full Value Phosphate** Allegheny City Fert. Wks., Allegheny, Pa.	Claimed.	......	......	12.00	......	1.00	......	13.00	......	......	......	....
		Found.	......	......	9.52	9.52	4.35	......	13.87	......	......	9.52	508
510	**Natural Bone Phosphate** The St. Louis Sanitary Co., St Louis, Mo.	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......	....
		Found.	......	......	11.90	11.90	5.88	......	17.78	......	......	11.90	510
513	**High Grade Wheat and Grass Grower** The Queen City Fert. Co., Cincinnati, O.	Claimed.	......	......	14.00	......	1.00	......	15.00	......	......	......	....
		Found.	......	......	14.34	14.34	1.08	......	15.42	......	......	14.34	513
514	**Special Wheat Grower** The Queen City Fert. Co., Cincinnati, O.	Claimed.	......	......	9.00	......	1.00	......	10.00	......	......	......	....
		Found.	......	......	10.11	10.11	2.43	......	12.54	......	......	10.11	514

TABLE V.—ROCK PHOSPHATE AND POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
4	**XXX Phosphate with Potash**...............	Claimed.	......	......	12.00	......	2.00	......	14.00	4.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O....	Found.	......	......	11.64	11.64	2.43	......	14.07	3.59	3.59	15.23	4
7	**Horsehead Phosphate with Potash**...........	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Cleveland Dryer Co., Cleveland, O....	Found.	......	......	9.77	9.77	2.94	......	12.71	1.99	1.99	11.76	7
27	**Soluble Bone and Potash**..................	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	S. M. Hess & Bro., Philadelphia, Pa......	Found.	......	......	10.62	10.62	0.57	......	11.19	2.39	2.39	13.01	27
35	**Dissolved Bone with Potash**...............	Claimed.	......	......	12.00	......	1.00	......	13.00	4.00	......	......	.....
	The Jarecki Chemical Co., Sandusky, O....	Found.	......	......	13.11	13.11	1.02	......	14.13	2.55*	2.93	16.04	35
46	**Dissolved Bone and Potash**...............	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Pacific Guano Co., Boston, Mass......	Found.	......	......	10.22	10.22	2.11	......	12.33	1.91	1.91	12.13	46
49	**Favorite**	Claimed.	......	......	10.00	......	0.50	......	10.50	3.13	......	......	.....
	The Springfield Fert. Co., Springfield, O....	Found.	......	......	11.14	11.14	0.63	......	11.77	2.46	2.46	13.60	49
54	**Competitor Phosphate**....................	Claimed.	......	......	10.00	......	......	......	11.00	1.00	......	......	.....
	James McCallum & Co., Dayton, O........	Found.	......	......	11.24	11.24	0.77	......	12.01	0.08	0.08	11.32	54
56	**Crown Phosphate and Potash**...............	Claimed.	......	......	11.00	......	2.00	......	13.00	2.00	......	......	.....
	John S. Reese & Co., Baltimore, Md........	Found.	......	......	13.30	13.30	0.70	......	14.00	2.26	2.26	15.56	56
67	**Bone and Potash Fertilizer**................	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Rasin-Monumental Co., Balto., Md.....	Found.	......	......	13.05	13.05	1.72	......	14.77	1.72	1.72	14.77	67

74	**Triumph Bone and Potash**	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	......
	The Clark's Cove Fert. Co., Boston, Mass.	Found.	......	......	10.39	10.39	2.11	......	12.50	1.99	1.99	12.38	74
79	**Dissolved Bone Phosphate and Potash**	Claimed.	......	......	10.00	......	......	......	12.00	1.00	......	......	......
	The Bowker Fertilizer Co., Boston, Mass.	Found.	......	......	11.19	11.19	2.30	......	13.49	1.20	1.20	12.39	79
83	**Bone and Potash**	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	......
	The Northwestern Fert. Co., Chicago, Ill.	Found.	......	......	10.87	10.87	2.36	......	13.23	2.04	2.04	12.91	83
104	**Phosphate and Potash**	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	......
	The Armour Fertilizer Works, Chicago, Ill.	Found.	......	......	12.29	12.29	1.02	......	13.31	1.72*	1.98	14.27	104
109	**Alkaline Bone and Potash**	Claimed.	......	......	11.00	......	1.00	......	12.00	2.00	......	......	......
	The Bradley Fert. Co., Boston, Mass.	Found.	......	......	10.22	10.22	2.43	......	12.65	2.04	2.04	12.26	109
112	**Dissolved Bone and Potash**	Claimed.	......	......	12.00	......	2.00	......	14.00	4.00	......	......	......
	The Western Union Chem. Co., Cleveland, O.	Found.	......	......	11.19	11.19	2.17	......	13.36	3.82	3.82	15.01	112
120	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	......
	The Crocker Fert. & Chem. Co., Buffalo, N.Y.	Found.	......	......	10.23	10.23	2.23	......	12.46	2.08	2.08	12.31	120
131	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	......
	The Schaal-Sheldon Fertilizer Co., Erie, Pa.	Found.	......	......	11.20	11.20	2.49	......	13.69	1.91	1.91	13.11	131
139	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	......
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	......	......	9.84	9.84	2.68	......	12.52	2.14	2.14	11.98	139
141	**Phosphate and Potash**	Claimed.	......	......	12.00	......	1.00	......	13.00	2.00	......	......	......
	Swift & Company, Chicago, Ill.	Found.	......	......	11.32	11.32	3.58	......	14.90	1.74*	2.00	13.32	141
144	**Soluble Bone and Potash**	Claimed.	......	......	11.00	......	2.00	......	13.00	2.00	......	......	......
	The Great Eastern Fertilizer Co., Rutland, Vt.	Found.	......	......	9.71	9.71	3.52	......	13.23	1.66	1.66	11.37	144
147	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	......
	Niagara Fertilizer Works, Buffalo, N. Y.	Found.	......	......	12.92	12.92	1.34	......	14.26	0.10	0.10	13.02	147
154	**Dissolved Bone and Potash**	Claimed.	......	......	12.00	......	1.00	......	13.00	1.00	......	......	......
	The M. Hamm Co., Washington C. H., O	Found.	......	......	14.33	14.33	1.59	......	15.92	1.89	1.89	16.22	154

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* From sulphate.

TABLE V.—ROCK PHOSPHATE AND POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
176	**Superphosphate with Potash**	Claimed.	......	......	10.00	......	......	......	12.00	2.00	......	......	.....
	The Bowker Fertilizer Co., Boston, Mass.	Found.	......	......	11.12	11.12	1.59	......	12.71	2.10	2.10	13.22	176
178	**Soluble Bone and Potash**	Claimed.	......	......	12.00	......	1.00	......	13.00	1.00	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	......	......	10.35	10.35	1.72	......	12.07	0.79	0.79	11.14	178
182	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	......	2.00	......	......	.....
	The Quinnipiac Co., Boston, Mass	Found.	......	......	10.30	10.30	2.49	......	12.79	2.01	2.01	12.31	182
184	**Wheat and Clover Fertilizer**	Claimed.	......	......	11.00	......	1.00	......	12.00	2.00	......	......	.....
	M. E. Wheeler & Co., Rutland, Vt.	Found.	......	......	10.55	10.55	1.40	......	11.95	2.22	2.22	12.77	184
198	**Pride of Ohio**	Claimed.	......	......	10.50	......	......	......	11.00	2.00	......	......	.....
	Earl Herrick, Cleveland, O.	Found.	......	......	9.33	9.33	2.94	......	12.27	2.10	2.10	11.43	198
200	**Red Line Phosphate with Potash**	Claimed.	......	......	10.00	......	......	......	11.00	2.00	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	......	......	10.03	10.03	2.68	......	12.71	2.10	2.10	12.13	200
202	**Big Four Phosphate**	Claimed.	......	......	8.00	......	1.00	......	9.00	1.00	......	......	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	......	......	8.05	8.05	0.90	......	8.95	0.66*	0.76	8.81	202
237	**Capital City Dissolved Bone and Potash**	Claimed.	......	......	12.00	......	1.00	......	13.00	4.00	......	......	....
	The Columbus Phosphate Co., Columbus, O.	Found.	......	......	12.72	12.72	0.64	......	13.36	4.88*	5.61	18.33	237
245	**Farmers' Friend**	Claimed.	......	......	9.00	......	2.00	......	11.00	1.00	......	......	.....
	The Alliance Fertilizer Co., Alliance, O.	Found.	......	......	8.82	8.82	1.02	......	9.84	1.18	1.18	10.00	245

247	**Dissolved Bone and Potash, Americus Brand**..	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Williams & Clark, Fert. Co., N. Y., N. Y.	Found.	......	......	10.49	10.49	2.56	......	13.05	2.08	2.08	12.57	247
249	**Alkaline Bone and Potash**..................	Claimed.	......	......	12.00	......	1.00	......	13.00	4.00	......	......	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	......	......	12.08	12.08	2.05	......	14.13	3.59	3.59	15.67	249
253	**Bone and Potash Mixture**....................	Claimed.	......	......	11.00	......	2.50	......	13.50	2.00	......	......	.....
	Louis F. Detrick, Baltimore, Md.	Found.	......	......	11.00	11.00	2.05	......	13.05	2.12	2.12	13.12	253
267	**Bone and Potash**............................	Claimed.	......	......	11.00	......	1.00	......	11.00	2.00	......	......	.....
	Josiah Cope & Co., Lincoln University, Pa.	Found.	......	......	10.17	10.17	1.08	......	11.25	3.44	3.44	13.61	267
269	**Bear Special Wheat and Corn Grower**........	Claimed.	......	......	11.00	......	1.00	......	12.00	2.00	......	......	.....
	The Continental Fert. Co., Nashville, Tenn..	Found.	......	......	13.94	13.94	0.96	......	14.90	2.04	2.04	15.98	269
282	**Big Crop Bone Phosphate and Potash**........	Claimed.	......	......	11.00	......	1.00	......	12.00	3.00	......	......	.....
	Geo. W. Mace, Greenville, O.	Found.	......	......	11.83	11.83	2.11	......	13.94	1.93	1.93	13.76	282
283	**Dissolved Bone Phosphate and Potash**........	Claimed.	......	......	13.00	......	2.00	......	15.00	1.50	......	......	.....
	Geo. W. Mace, Greenville, O.	Found.	......	......	13.38	13.38	2.87	......	16.25	0.58	0.58	13.96	283
284	**Critchfield's Wheat and Grass Phosphate**......	Claimed.	......	......	11.00	......	1.00	......	12.00	2.00	......	......	.....
	The Tennessee Chem. Co., Nashville, Tenn...	Found.	......	......	12.66	12.66	0.90	......	13.56	2.14	2.14	14.80	284
295	**Wheat, Oats and Clover**.....................	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Packers' Union Fert. Co., N. Y., N. Y...	Found.	......	......	9.78	9.78	3.33	......	13.11	1.83	1.83	11.61	295
304	**Bone and Potash or Alkaline Bone**...........	Claimed.	......	......	10.00	......	......	......	11.00	2.00	......	......	.....
	The Read Fertilizer Co., New York, N. Y..	Found.	......	......	9.79	9.79	3.00	......	12.79	1.91	1.91	11.70	304
313	**Dissolved Bone and Potash**................	Claimed.	......	......	12.00	......	1.00	......	13.00	4.00	......	......	.....
	G. W. Rickard, Medina, O.	Found.	......	......	12.92	12.92	1.66	......	14.58	2.95	2.95	15.87	313
324	**Ox Alkaline Bone**........................	Claimed.	......	......	12.00	......	1.00	......	13.00	2.00	......	......	.....
	The Tennessee Chem. Co., Nashville, Tenn...	Found.	......	......	13.11	13.11	1.92	......	15.03	1.87	1.87	14.98	324
325	**Ox Bone and Potash**......................	Claimed.	......	......	12.00	......	1.00	......	13.00	1.00	......	......	.....
	The Tennessee Chem. Co., Nashville, Tenn.	Found.	......	......	13.70	13.70	4.47	......	18.17	0.77	0.77	14.47	325

*** From sulphate.**

TABLE V.—ROCK PHOSPHATE AND POTASH—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
334	**Natural Plant Food**	Claimed.	......	......	8.00	......	1.00	......	9.00	1.00	......	......	.....
	The Bucyrus Fert. Co., Bucyrus, O.	Found.	......	......	8.68	8.68	3.52	......	12.20	1.54	1.54	10.22	334
364	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	Farmers' Union Fert. Wks., Buffalo, N. Y.	Found.	......	......	10.36	10.36	2.49	......	12.85	2.01	2.01	12.37	364
366	**Grain and Grass Grower**	Claimed.	......	......	10.00	......	......	......	10.00	2.00	......	......	.....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	......	......	10.55	10.55	1.85	......	12.40	2.24	2.24	12.79	366
374	**Grain and Grass**	Claimed.	......	......	12.00	......	1.00	......	13.00	1.00	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	......	......	11.90	11.90	1.53	......	13.43	1.79	1.79	13.69	374
378	**Lawrence's Wheat Special**	Claimed.	......	......	10.00	......	......	......	12.00	1.08	......	......	.....
	The Royal Fert. Co., Cleveland, O.	Found.	......	......	9.47	9.47	4.02	......	13.49	1.58	1.58	11.05	378
381	**Ohio Grain and Grass Grower**	Claimed.	......	......	10.00	......	......	......	12.00	1.00	......	......	.....
	The Canton Fertilizer Co., Canton, O.	Found.	......	......	12.47	12.47	1.34	......	13.81	0.25	0.25	12.72	381
384	**Alkaline Bone**	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Detrick Fert. & Chem. Co., Baltimore, Md.	Found.	......	......	9.40	9.40	3.90	......	13.30	1.58	1.58	10.98	384
398	**Dissolved Bone with Potash**	Claimed.	......	......	12.00	......	......	......	14.00	2.00	......	......	.....
	Geo. A. Bell, Wheelersburg, O.	Found.	......	......	12.29	12.29	1.66	......	13.95	2.35	2.35	14.64	398

413	**High Grade Corn and Wheat Grower with Potash**	Claimed.	......	......	11.00	......	1.00	......	12.00	2.00	......	......	.....
	The Queen City Fert. Co., Cincinnati, O....	Found.	......	......	10.50	10.50	0.90	......	11.40	2.58*	2.97	13.47	413
425	**Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Louisville Fertilizer Co., Louisville, Ky.	Found.	......	......	12.02	12.02	0.77	......	12.79	1.47	1.47	13.49	425
427	**Wheat Grower**	Claimed.	......	......	8.00	......	1.00	......	9.00	2.00	......	......	.....
	The Louisville Fertilizer Co., Louisville, Ky.	Found.	......	......	11.57	11.57	0.70	......	12.27	1.76	1.76	13.33	427
439	**Dissolved Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	11.00	2.00	......	......	.....
	The Allegheny City Fert.Wks., Allegheny, Pa.	Found.	......	......	11.19	11.19	0.64	......	11.83	2.53	2.53	13.72	439
455	**High Grade Phosphate No. 1**	Claimed.	......	......	15.00	......	......	......	......	2.00	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O.	Found.	......	......	15.35	15.35	1.15	......	16.50	3.84*	4.42	19.77	455
467	**Wheat Maker**	Claimed.	......	......	12.00	......	1.00	......	13.00	2.50	......	......	.....
	The Ohio Farmers' Fert. Co., Columbus, O..	Found.	......	......	7.99	7.99	1.79	......	9.78	2.18	2.18	10.17	467
480	**Urbana Acidulated Bone and Potash**	Claimed.	......	......	10.00	......	1.00	......	12.00	1.00	......	......	.....
	The Loudenback Fert. Co., Urbana, O......	Found.	......	......	9.40	9.40	0.96	......	10.36	0.60	0.60	10.00	480
482	**Electric Phosphate**	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......	.....
	The Zell Guano Co., Baltimore, Md.	Found.	......	......	9.15	9.15	3.25	......	12.40	2.55	2.55	11.70	482

* From sulphate.

TABLE VI.—TANKAGE.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Value	Total Value	Record Number
					Available		Insoluble		Total Percent			
			Percent	Value	Percent	Value	Percent	Value				
179	**Ammoniated Bone Meal**	Claimed.	5.00	......	......	......	......	......	15.00	....	....	....
	The Jones Fertilizing Co., Cincinnati, O.	Found.	5.45	7.63	......	......	......	......	16.05	11.24	18.87	179
187	**Packing House Fertilizer**	Claimed.	8.00	......	......	......	......	......	13.00	....	....	....
	The Cleveland Provision Co., Cleveland, O.	Found.	7.90	11.06	......	......	......	......	14.39	10.07	21.13	187
276	**Bone and Blood Fertilizer**	Claimed.	4.85	......	......	......	......	......	19.76	....	....	....
	Geo. Rupp & Co., Hamilton, O.	Found.	4.50	6.30	......	......	......	......	17.20	12.04	18.34	276
387	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	....	....	....
	The Hardy Packing Co., Chicago, Ill.	Found.	3.55	4.97	......	......	......	......	15.27	10.69	15.66	387
392	**Fine Ground Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	....	....	....
	The Ohio Farmers' Fert. Co., Columbus, O.	Found.	3.65	5.11	......	......	......	......	14.13	9.89	15.00	392
394	**Pure Bone and Tankage**	Claimed.	4.80	......	......	......	......	......	20.79	....	....	....
	A. C. Henkle, Circleville, O.	Found.	6.30	8.82	......	......	......	......	17.07	11.95	20.77	394
491	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	14.00	....	....	....
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	3.55	4.97	......	......	......	......	15.57	10.90	15.87	491

TABLE VIII.—BONES.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone.		In Med. Bone.						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
21	**Bone Meal**	Claimed.	3.00						25.00				
	Swift & Company, Chicago, Ill	Found.	3.60	9.00	24.12	20.50	2.24	1.46	26.36			30.96	21
31	**Banner Raw Bone Flour**	Claimed.	3.75						18.35				
	Michigan Carbon Works, Detroit, Mich.	Found.	4.30	10.75	16.39	13.93	4.18	2.72	20.57			27.40	31
32	**Desiccated Bone**	Claimed.	1.50						25.00				
	Michigan Carbon Works, Detroit, Mich.	Found.	1.65	4.12	18.72	15.91	8.02	5.21	26.74			25.24	32
42	**Big Two**	Claimed.	2.50						24.00				
	Nelson Morris & Co., Chicago, Ill.	Found.	3.50	8.75	21.13	17.96	2.22	1.44	23.35			28.15	42
55	**Bone Meal**	Claimed.	3.00						24.00				
	The Armour Fertilizer Works, Chicago, Ill.	Found.	3.85	9.62	20.29	17.25	5.23	3.40	25.52			30.27	55
138	**Cyclone Pure Bone**	Claimed.	3.00						20.00				
	The Milsom Rend. & Fert. Co., Buffalo, N. Y.	Found.	2.90	7.25	14.71	12.50	5.44	3.54	20.15			23.29	138
142	**Raw Bone Meal**	Claimed.	4.50						23.00				
	Swift & Company, Chicago, Ill	Found.	4.80	12.00	16.65	14.15	6.64	4.32	23.29			30.47	142
209	**Bone Meal**	Claimed.	2.00						20.00				
	The Bowker Fertilizer Co., Boston, Mass.	Found.	1.95	4.88	18.49	15.72	7.74	5.03	26.23			25.63	209
222	**Superior Pure Ground Bone**	Claimed.	4.00						23.00				
	Jas. McCallum & Co., Dayton, O	Found.	5.70	14.25	11.94	10.15	6.87	4.46	18.81			28.86	222

TABLE VIII.—Bones—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone.		In Med. Bone.		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
227	**Superior Pure Raw Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	22.00	.....	.....	.....	.....
	The Canton Fertilizer Co., Canton, O.	Found.	4.65	11.62	11.74	9.98	8.15	5.30	19.89	.....	.....	26.90	227
230	**Square Bone**	Claimed.	2.50	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	2.00	5.00	12.99	11.04	4.92	3.20	17.91	.....	.....	19.24	230
238	**Capital City Ground Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	The Columbus Phosphate Co., Columbus, O.	Found.	3.80	9.50	17.03	14.48	5.23	3.40	22.26	.....	.....	27.38	238
248	**Pure Ground Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	The Northwestern Fert. Co., Chicago, Ill.	Found.	3.45	8.62	16.62	14.13	4.42	2.87	21.04	.....	.....	25.62	248
250	**Ground Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	The Crocker Fert. & Chem. Co., Buffalo, N. Y.	Found.	3.75	9.38	14.49	12.32	4.57	2.97	19.06	.....	.....	24.67	250
260	**Pure Ground Bone**	Claimed.	4.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	Strecker Bros., Marietta, O.	Found.	5.30	13.25	15.06	12.80	5.60	3.64	20.66	.....	.....	29.69	260
289	**Ground Raw Bone**	Claimed.	4.00	.....	.....	.....	.....	.....	21.00	.....	.....	.....	.....
	Darling & Company, Chicago, Ill.	Found.	4.85	12.12	13.31	11.31	10.04	6.53	23.35	.....	.....	29.96	289
290	**Pure Ground Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	23.00	.....	.....	.....	.....
	Darling & Company, Chicago, Ill.	Found.	2.95	7.38	21.26	18.07	5.48	3.56	26.74	.....	.....	29.01	290
298	**Superior Bone**	Claimed.	3.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	.....
	The Cleveland Dryer Co., Cleveland, O.	Found.	3.50	8.75	13.70	11.64	6.45	4.19	20.15	.....	.....	24.58	298

305	**Pure Bone Meal**	Claimed.	3.50	......	......	......	......	......	22.00	......	......	......	.....
	The Schaal-Sheldon Fert. Co., Erie, Pa.	Found.	4.15	10.38	12.34	10.49	10.95	7.12	23.29	......	......	27.99	305
307	**Pure Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The Williams & Clark Fert. Co., N. Y,. N. Y.	Found.	3.25	8.12	15.37	13.06	4.08	2.65	19.45	......	......	23.83	307
323	**Pure Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The E. Rauh & Sons Fert. Co., Indpls., Ind.	Found.	2.75	6.88	15.07	12.81	4.25	2.76	19.32	......	......	22.45	323
330	**Chicago Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	2.60	6.50	10.42	8.86	2.94	1.91	13.36	......	......	17.27	330
338	**Pure Bone Flour**	Claimed.	4.00	......	......	......	......	......	21.00	......	......	......	.....
	Geo. S. Bartlett, Cincinnati, O.	Found.	4.25	10.62	19.42	16.51	2.65	1.72	22.07	......	......	28.85	338
356	**German Cologne**	Claimed.	4.00	......	......	......	......	......	25.00	......	......	......	.....
	J. L. Norton, Delaware, O.	Found.	3.25	8.12	13.73	11.67	5.08	3.30	18.81	......	......	23.09	356
360	**Maumee Valley Fertilizer**	Claimed.	4.80	......	......	......	......	......	10.67	0.68	......	......	.....
	Nicholas Rassel & Co., Toledo, O.	Found.	4.20	10.50	11.77	10.00	3.71	2.41	15.48	0.41	0.41	23.32	360
361	**Pure Ground Bone**	Claimed.	6.50	......	......	......	......	......	21.11	0.93	......	......	.....
	Nicholas Rassel & Co., Toledo, O.	Found.	3.65	9.12	17.69	15.04	7.58	4.93	25.27	0.25	0.25	29.34	361
370	**Ground Bone**	Claimed.	2.50	......	......	......	......	......	22.00	......	......	......	.....
	The Read Fert. Co., New York, N. Y.	Found.	2.00	5.00	16.33	13.88	5.74	3.73	22.07	......	......	22.61	370
372	**Render's Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	.....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	3.85	9.62	12.97	11.02	3.66	2.38	16.63	......	......	23.02	372
382	**Pure Ground Bone**	Claimed.	4.50	......	......	......	......	......	21.00	......	......	......	.....
	L. T. Nye, Seville, O.	Found.	4.45	11.12	13.50	11.47	7.93	5.15	21.43	......	......	27.74	382
386	**Fine Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The Bradley Fert. Co., Boston, Mass.	Found.	2.85	7.12	15.73	13.37	5.25	3.41	20.98	......	......	23.90	386
399	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	24.00	......	......	......	.....
	Geo. A. Bell, Wheelersburg, O.	Found.	5.25	13.12	11.79	10.02	9.64	6.27	21.43	......	......	29.41	399

TABLE VIII.—BONES—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone.		In Med. Bone.		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
403	**Bone Meal**	Claimed.	3.40	......	......	......	......	......	25.45	......	......	......	.....
	The National Glue Co., Indianapolis, Ind	Found.	3.15	7.88	23.44	19.92	2.04	1.33	25.52	......	......	29.13	403
408	**Pure Raw Bone**	Claimed.	4.60	......	......	......	......	......	25.00	......	......	......	.....
	The Alliance Fertilizer Co., Alliance, O.	Found.	4.95	12.38	8.38	7.12	12.60	8.19	20.98	......	......	27.69	408
412	**Raw Bone Meal**	Claimed.	4.50	......	......	......	......	......	22.00	......	......	......	.....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	4.30	10.75	2.63	2.24	23.66	15.38	26.29	......	......	28.37	412
416	**Raw Bone Meal**	Claimed.	3.00	......	......	......	......	......	21.00	......	......	......	.....
	The E. Rauh & Sons Fert. Co., Indpls., Ind.	Found.	3.60	9.00	12.47	10.60	6.72	4.37	19.19	......	......	23.97	416
418	**Sunflower Bone Meal**	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	.....
	The Clark's Cove Fertilizer Co., Boston, Mass.	Found.	1.70	4.25	13.11	11.14	2.88	1.87	15.99	......	......	17.26	418
419	**Wolverine Ground Bone**	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	1.75	4.38	11.42	9.71	3.80	2.47	15.22	......	......	16.56	419
432	**Pure Raw Bone Meal**	Claimed.	3.50	......	......	......	......	......	22.00	......	......	......	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	4.30	10.75	18.52	15.74	4.95	3.22	23.47	......	......	29.71	432
435	**Pure Raw Bone Meal**	Claimed	3.00	......	......	......	......	......	22.00	......	......	......	.....
	Allegheny City Fert. Works, Allegheny, Pa.	Found.	3.25	8.12	14.24	12.10	8.34	5.42	22.58	......	......	25.64	435
437	**Lawn Fertilizer**	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	.....
	Swift & Company, Chicago, Ill.	Found.	4.85	12.12	19.79	16.82	4.32	2.81	24.11	......	......	31.75	437

438	**White Oak Pure Ground Bone**..............	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The Clark's Cove Fert. Co., Boston, Mass. ..	Found.	2.95	7.38	14.30	12.16	5.40	3.51	19.70	......	......	23.05	438
440	**Pure Ground Bone**..........................	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	M. E. Wheeler & Co., Rutland, Vt.	Found.	3.00	7.50	14.23	12.09	5.40	3.51	19.63	......	......	23.10	440
441	**Pure Ground Bone**.........................	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	.....
	The Great Eastern Fert. Co., Rutland, Vt.	Found.	2.75	6.88	15.71	13.35	4.69	3.05	20.40	......	......	23.28	441
442	**Pure Ground Bone**.........................	Claimed.	3.00	......	......	......	......	......	22.00	......	......	......	.....
	The Packers' Union Fert. Co., N. Y., N. Y...	Found.	2.75	6.88	14.68	12.48	4.64	3.02	19.32	......	......	22.38	442
457	**Pure Raw Bone Meal**......................	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	.....
	The J.L.& H. Stadler R. & F.Co.,Cleveland,O.	Found.	4.75	11.88	17.20	14.62	6.27	4.08	23.47	......	......	30.58	457
465	**Buckeye Bone Meal**.......................	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	.....
	The Buckeye Phosphate Co., Columbus, O...	Found.	3.45	8.62	12.52	10.64	4.17	2.71	16.69	......	......	21.97	465
473	**Bone Meal**................................	Claimed.	4.00	......	......	......	......	......	20.00	......	......	......	.....
	The Jones Fertilizing Co., Cincinnati, O. ..	Found.	4.30	10.75	15.47	13.15	7.30	4.74	22.77	......	......	28.64	473
475	**Pure Bone Meal**	Claimed.	4.00	......	......	......	......	......	21.00	......	......	......	.....
	L. Frank & Sons, Zanesville, O.	Found.	4.20	10.50	11.47	9.75	9.77	6.35	21.24	......	......	26.60	475
484	**Pure Raw Bone Meal**......................	Claimed.	4.50	......	......	......	......	......	26.00	......	......	......	.....
	The Pittsburg Provision Co., Pittsburg, Pa.	Found.	5.30	13.25	18.56	15.78	1.84	1.20	20.40	......	......	30.23	484
499	**Pure Raw Bone**............	Claimed.	3.00	......	......	......	......	......	18.00	......	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O......	Found.	4.85	12.12	10.40	8.84	10.78	7.01	21.18	......	......	27.97	499
500	**Acidulated Pure Bone**....................	Claimed.	2.00	......	......	......	......	......	18.00	......	......	......	.....
	The Seneca Fertilizer Works, Tiffin, O......	Found.	2.30	5.75	10.35	8.80	8.46	5.50	18.81	......	......	20.05	500
507	**Extra Fine Ground Bone**..................	Claimed.	2.00	......	......	......	......	......	14.00	......	......	......	.....
	The Standard Fertilizer Co., Boston, Mass. ..	Found.	2.60	6.50	10.77	9.15	4.20	2.73	14.97	......	......	18.38	507

TABLE IX.—POTASH SALTS.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
362	**No. 1 Syndicate Muriate of Potash**..........	Claimed.	......	......	......	......	......	......	......	50.54	......	......	.....
	James Bonday, Jr. & Co., Baltimore, Md. ..	Found.	......	......	......	......	......	......	......	45.64	45.64	45.64	362
367	**Old Reliable Brand Genuine Kainit**..........	Claimed.	......	......	......	......	......	......	......	12.44	......	......	.....
	James Bonday, Jr. & Co., Baltimore, Md....	Found.	......	......	......	......	......	......	......	12.48	12.48	12.48	367

TABLE X.—SPECIAL SALTS—NITRATE OF SODA

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					Available		Insoluble						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
226	**Capital City Nitrate of Soda**..............	Claimed.	16.50	......	......	......	......	......	......	......	......	......	
	The Columbus Phosphate Co., Columbus, O. ..	Found.	14.40	36.00	......	......	......	......	......	......	......	36.00	226

LIST OF COMMERCIAL FERTILIZERS PROPERLY LICENSED

And offered for sale in Ohio in 1900, but samples of which were *not found* by the Secretary or Deputies on the markets, hence they have not been analyzed, and their valuations do not appear in this report.

MANUFACTURERS' CLAIMS.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
The Allegheny City Fertilizer Works, Allegheny, Pa.—					
Odorless Lawn and Garden Fertilizer	3.00–5.00	6.00–8.00	9.00–10.00	15.00–18.00	3.00–4.00
The Alliance Fertilizer Co., Alliance, O.—					
Fine Ground Alkaline Bone	....	10.00–12.00	1.00–2.00	11.00–14.00	....
The American Reduction Co., Pittsburg, Pa.—					
Fine Ground Bone	4.00	....	....	23.00	....
The Armour Fertilizer Works, Chicago, Ill.—					
A. H. Wilking's Grain and Grass Grower	1.00–2.00	8.00–10.00	2.00–3.00	10.00–12.00	2.00–3.00
The Armour Packing Co., Kansas City, Kan.—					
Armour's Flower Food	8.50	14.00	3.00	17.00	12.00
Geo. S. Bartlett, Cincinnati, O.—					
Gilead Phosphate	3.00	9.00	2.00	11.00	2.00
Ohio Valley Phosphate	2.00	8.00	3.00	11.00	2.00
The Baugh & Sons Co., Philadelphia, Pa.—					
General Crop Grower	1.00	8.00	2.64	10.64	1.00

D. Blocher & Co., Gettysburg, Pa.—					
High Grade Superphosphate of Bone	1.50	9.00	2.00	11.00	1.50
Jas. Bonday, Jr. & Co., Baltimore, Md.—					
No. 1 Syndicate Sulphate of Potash	....	....	....	....	48.67
The Bonner Fertilizer Co., Columbus, O.—					
Bone and Meat	3.05	....	....	14.90	....
The Bucyrus Fertilizer Co., Bucyrus, O.—					
Superior Pure Ground Bone	4.00–4.50	....	....	21.00–25.00	....
The Continental Fertilizer Co., Nashville, Tenn.—					
Bear XX Acid Phosphate	....	10.00	1.00	11.00	....
Josiah Cope & Co., Lincoln University, Pa.—					
Acidulated Phosphate	....	14.00–16.00	1.00–2.00	16.00–18.00	....
The Crocker Fert. & Chem. Co., Buffalo, N. Y.—					
Ammoniated Wheat and Corn Phosphate	2.50	8.00	1.00	9.00	1.50
Ammoniated Bone Superphosphate	3.00	9.00	1.00	10.00	2.00
Bone Meal	2.00	....	....	14.00	....
The Cumberland Bone Phosphate Co., Boston, Mass.—					
Bone and Potash	....	10.00	1.00	11.00	2.00
Seeding Down	1.00	7.00	1.00	8.00	1.00
Potato Phosphate	1.00	8.00	1.00	9.00	4.00
Extra Fine Ground Bone	2.00	....	....	14.00	....
The Currie Fertilizer Co., Louisville, Ky.—					
Pure Ground Tobacco	1.50	....	....	....	5.00
Darling & Company, Chicago, Ill.—					
Western Brand	0.50–1.00	7.00–9.00	2.00–4.00	8.00–10.00	0.50–1.00
The Detrick Fertilizer & Chemical Co., Baltimore, Md.—					
Paragon Ammoniated Bone Phos. and Potash	1.00	7.00	2.00	9.00	1.00
Farmers' Union Fertilizer Works, Buffalo, N. Y.—					
Potato, Tobacco and Truck Manure	2.50	8.00	1.00	9.00	3.00

List of Commercial Fertilizers Properly Licensed.—Continued.

Manufacturers' Claims.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
The Globe Fertilizer Co., Louisville, Ky.—					
Eagle Corn and Wheat Grower	2.00–3.00	8.00–10.00	1.00–2.00	10.00–12.00	2.00–3.00
The M. Hamm Co., Washington C. H., O.—					
Fine Ground Bone Meal	2.50–3.50	....	....	24.00–26.00	....
Soluble Bone	....	13.00–15.00	1.00–2.00	14.00–17.00	....
Charles Hermann, Myrtle, O.—					
Bone Meal	3.00	....	....	20.00	....
The Hosler Packing Co., Circleville, O.—					
Bone Tankage Fertilizer	4.50	....	....	19.00	....
The Jarecki Chemical Co., Sandusky, O.—					
Pure Ground Bone	3.00	....	....	20.00	....
The Jones Fertilizing Co., Cincinnati, O.—					
Acidulated Bone	4.00	7.00	7.50	14.50	....
The Kaufman Fertilizer Co., Indianapolis, Ind.—					
Half and Half	3.00	12.00	3.00	15.00	....
Hoosier Brand Pure Bone	3.00	....	....	25.00	....
Edwin Lamb, Youngstown, O.—					
Night Soil Guano	....	....	....	....	....

C. R. Lawwill, Manchester, O.—					
Farm and Fruit C Grade	2.50	5.00	1.00	6.00	3.00
Lister's Agricultural Chemical Works, Newark, N. J.—					
Special Wheat Fertilizer	2.00–3.00	8.00–10.00	1.00–2.00	10.00–12.00	1.00–2.00
The Loudenback Fertilizer Co., Urbana, O.—					
Urbana Acidulated Bone	....	13.00–15.00	....	16.00–17.00	....
The Louisville Fertilizer Co., Louisville, Ky.—					
Dissolved Bone	....	14.00–16.00	1.00–2.00	15.00–18.00	....
Geo. W. Mace, Greenville, O.—					
Tip Top Superphosphate	....	15.00	1.00	16.00	....
The Michigan Carbon Works, Detroit, Mich.—					
Red Line Crop Grower	2.00–3.00	8.00–10.00	....	9.00–11.00	2.00–3.00
Nelson Morris & Co., Chicago, Ill.—					
Big One	4.00–5.00	....	....	22.00–26.00	....
The Niagara Fertilizer Works, Buffalo, N. Y.—					
Triumph	3.00	9.00	1.00	10.00	2.00
The G. Ober & Sons Co., Baltimore, Md.—					
Farmers' Standard Ammoniated Phos.	2.00–3.00	9.00–11.00	2.75–3.50	11.75–14.50	2.00–3.00
Farmers' Mixture	1.00–2.00	9.00–11.00	2.00–3.00	11.00–14.00	2.00–3.00
Dissolved Bone Phosphate and Potash	....	11.00–13.00	2.00–3.00	13.00–16.00	2.00–3.00
The Ohio Bone Phosphate Co., Orrville, O.—					
Ammoniated Bone	5.50	9.00	1.00	10.00	2.00
W. B. Guano	2.50	7.00	1.00	8.00	2.00
Ammoniated Superphosphate	1.50	7.00	1.00	8.00	1.00
The Pacific Guano Co., Boston, Mass.—					
Fine Ground Bone	2.00	....	....	14.00	....
The Packers' Union Fertilizer Co., New York, N. Y.—					
Animal Corn Fertilizer	3.00	9.00	1.00	10.00	2.00
Potato Manure	2.50	8.00	1.00	9.00	6.00

LIST OF COMMERCIAL FERTILIZERS PROPERLY LICENSED—Continued.

MANUFACTURERS' CLAIMS.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
The Pittsburg Provision Co., Pittsburg, Pa.—					
Crescent Butchers' Ground Bone	3.00–4.00	....	....	16.00–18.00	....
Corn and Potato Fertilizer	2.00–3.00	9.00–12.00	2.00–4.00	11.00–14.00	3.00–4.00
The Quinnipiac Co., Boston, Mass.—					
Ammoniated Dissolved Bone	2.00	8.00	1.00	9.00	2.00
Special Potato	1.00	8.00	1.00	9.00	3.86
The Rasin-Monumental Co., Baltimore, Md.—					
Tobacco and Vegetable Special	2.00	8.00	1.50	9.50	5.00
The Read Fertilizer Co., New York, N. Y.—					
Acid Phosphate	....	14.00	1.00	15.00	....
Tenfold	....	10.00	2.00	12.00	....
Reed & Roepke, Akron, O.—					
Farmers' Friend, Quick Return	2.75	11.00	....	11.00	2.00
John Ruehle, Defiance, O.—					
Defiance Fertilizer	2.00–3.00	2.00–3.00	1.00–2.00	3.00–5.00	0.50–1.00

The Schaal-Sheldon Fertilizer Co., Erie, Pa.—					
Sheldon's Truckers' Manure	4.00–5.21	8.00–9.00	1.00–2.00	9.00–11.00	7.00–8.00
Sheldon's Superior for All Crops	2.50–3.04	9.00–10.00	1.00–2.00	10.00–12.00	2.00–3.00
Sheldon's Guano	2.00–2.43	7.00–8.00	1.00–2.00	8.00–10.00	1.00–2.00
Dissolved Bone with Extra Potash	....	10.00–12.00	1.00–2.00	11.00–14.00	4.00–6.00
The Scientific Fertilizer Co., Pittsburg, Pa.—					
Corn and Grain Fertilizer	2.10–2.50	7.40–8.40	1.00–1.10	8.50–9.50	2.15–2.65
Economy	2.20–2.75	7.65–8.50	1.10–1.25	8.75–9.75	3.90–4.75
Potato	2.90–3.40	8.40–9.20	2.10–2.30	10.50–11.50	6.25–6.85
Bone, Meat and Potash Fertilizer	3.85–4.50	7.90–8.45	1.60–1.80	9.50–10.25	8.25–9.10
Pure Raw Bone Meal	3.65–4.15	....	....	22.00–24.00	....
The Springfield Fertilizer Co., Springfield, O.—					
Soluble	1.00	6.50	0.50	7.00	2.35
The J. L. & H. Stadler Rend. and Fert. Co., Cleveland, O.—					
Live and Let Live Phosphate	....	4.55	4.01	8.56	....
The Standard Fertilizer Co., Boston, Mass.—					
Bone and Potash	....	10.00	2.00	12.00	2.00
C. A. Standen, Elyria, O.—					
Pure Bone Meal	4.70	....	....	24.50	....
Swift & Company, Chicago, Ill.—					
Ammoniated Bone	6.00	....	....	17.00	....
The Tennessee Chemical Co., Nashville, Tenn.—					
Ox Potash Mixture	....	10.00	1.00	11.00	2.00
Ox XX Acid Phosphate	....	10.00	1.00	11.00	....
Ox Ammoniated Bone	2.00	10.00	1.00	11.00	2.00
Walker, Stratman & Co., Pittsburg, Pa.—					
Help Mate	....	12.00–14.00	1.00–1.25	13.00–15.00	....

List of Commercial Fertilizers Properly Licensed—Concluded.

Manufacturers' Claims.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
The Walton Fertilizer Co., Cleveland, O.—					
Triumph Phosphate	....	8.00–9.00	1.00–3.00	9.00–12.00	....
Diamond Bone Black and Potash	....	13.00–15.00	1.00–3.00	14.00–18.00	3.00–4.00
Wheat and Grass Grower	1.00–2.00	10.00–12.00	1.00–3.00	11.00–15.00	1.00–2.00
Pure Bone and Potash	2.00–3.00	4.50	....	11.47	2.00–3.00
A. H. Wilking, Beaver, O.—					
Grain and Grass Grower	1.00–2.00	8.00–10.00	....	10.00–12.00	2.00–3.00
The Zell Guano Co., Baltimore, Md.—					
T. & P. Superphosphate	....	14.00	2.00	16.00	....

FERTILIZER LAW.

REVISED STATUTES OF OHIO.

To Regulate the Manufacture and Sale of Commercial Fertilizers.

SEC. 4446*a*. **[How package containing commercial fertilizer to be marked.]** Any person or company who shall offer, sell or expose for sale in this State, any commercial fertilizer, shall affix to every package, in a conspicuous place on the outside thereof, a plainly printed certificate stating the number of net pounds in the package sold or offered for sale, the name or trade mark under which the article is sold, the name of the manufacturer and place of manufacture, and a chemical analysis stating the percentage of nitrogen, or its equivalent in ammonia, in an available form, of potash soluble in water, and of phosphoric acid, in an available form (soluble or reverted) as well as the total phosphoric acid.

SEC. 4446*b*. **[Person offering same for sale to deposit sample with Secretary State Board of Agriculture.]** Before any commercial fertilizer is sold or offered for sale, the manufacturer, importer, or party who causes it to be sold or offered for sale within the State of Ohio, shall file with the Secretary of the Ohio State Board of Agriculture a certified copy of the certificate referred to in Section One (4446*a*) of this act, and shall deposit with said Secretary, a sealed glass jar, containing not less than one pound of the fertilizer, accompanied with an affidavit that it is a fair average sample.

SEC. 4446*c*. **[Manufacturer, importer, or agent to pay license.]** The manufacturer, importer or agent of any commercial fertilizer, shall pay, annually, on or before the first day of May, a license fee of twenty dollars *on each brand,* for the privilege of selling or offering for sale within the State, said fee to be paid to the Secretary of the Ohio State Board of Agriculture; provided, that whenever the manufacturer or importer shall have paid the license fee herein required, for any person acting as agent for such manufacturer or importer, such agent shall not be required to pay the fee named in this section.

SEC. 4446*d*. **[Analysis to be made by Secretary State Board of Agriculture.]** All analyses of commercial fertilizers sold within the State shall be made by or under the direction of the Secretary of the Ohio State Board of Agriculture, and paid for out of the funds arising from license fees, as provided for in Section Three [4446*c*]. At least one analysis of each fertilizer sold shall be annually made.

SEC. 4446*e*. **[Secretary to publish, annually, report of analyses made and fees received.]** Said Secretary shall publish annually, a correct report of all analyses made and certificates filed, together with a statement of moneys received on account of license fees and expended for analyses, and any surplus arising from license permits shall be placed to the credit of the agricultural fund.

SEC. 4446*f*. **[Persons selling without complying with foregoing provisions, how punished.]** Any person or party who shall offer or expose for sale, or sell, any commercial fertilizer without complying with the provisions of Sections 4446*a*, 4446*b* and 4446*c* of the Revised Statutes, or shall permit an analysis to be attached to any package of such fertilizer, stating that it contains a larger percentage of any one or more of the constituents named in said Section 4446*a* than it really does contain, shall be subject to a penalty of not less than two hundred dollars for the first offense, and not less than five hundred dollars for every subsequent offense, to be recovered in a civil action, and the offender, in all cases, shall also be liable for damages sustained by the purchasers of such fertilizers; provided, however, that a deficiency of one per cent. of the nitrogen, potash or phosphoric acid claimed to be contained, shall not be considered as evidence of fraudulent intent.

SEC. 4446*g*. **[Where suits to recover penalties may be brought.]** Suit may be brought for the recovery of penalties under the provisions of this act in the court of common pleas of the county where the fertilizer was offered for sale, or sold, or where it was manufactured; and all penalties so recovered, shall be paid into the State treasury to the credit of the general revenue fund.

SEC. 4446*h*. **[Secretary of State Board of Agriculture may select samples to be analyzed.]** The Secretary of the Ohio State Board of Agriculture, or any person by him deputized, is hereby empowered to select from any package of commercial fertilizer exposed for sale in any county in Ohio, a quantity not exceeding two pounds, which quantity shall be for analysis to compare with sample deposited with said Secretary, as provided in Section Two [4446*b*] of this act, and with the printed certificate found on the given package found on sale.

SEC. 4446*i*. **[All suits under this act to be brought by Secretary State Board of Agriculture.]** All suits for the recovery of fines under the provisions of this act, shall be brought by the Secretary of the Ohio State Board of Agriculture, in the name of the State of Ohio.

SEC. 7002. **[Fine and imprisonment for violation of provisions of fertilizer law.]** Whoever sells, exposes for sale, or offers for sale any commercial fertilizer without having complied with the provisions of Sections 4446*a*, 4446*b* and 4446*c* of the Revised Statutes shall be fined in any sum not exceeding two hundred dollars, or imprisoned not more than thirty days, or both, and said fine or imprisonment, or both, shall not be a bar to the recovery of the civil penalty provided for by Sections 4446*f* and 4446*g* of the Revised Statutes.

REPORT OF THE PROCEEDINGS

OF THE

ANNUAL MEETING

OF THE

OHIO STATE BOARD OF AGRICULTURE

Held in the Senate Chamber, Columbus.
January 17, 1901.

Promptly at 10 o'clock a. m. the President, Mr. H. S. Grimes, called the State Board of Agriculture to order, and said: Gentlemen, there is only one favor that I desire to ask of you today and that is that you assist me as your presiding officer. By your assistance it will expedite our business. That is all that I ask of you; and now the first thing in order will be the calling of the roll.

The Secretary: Mr. President, I have a list of names, a partial list of delegates, made as they have handed in their reports. Some reports have not been handed in and as a consequence I do not have a complete list of all the delegates; and possibly the clerk in the office has made error in some of the name on the list. In the counties where we have the delegates' names I will call the county and the name of the delegate we have on the list, and if it is correct I would like to have the delegate respond; if incorrect, have correction made; or, if no delegate is reported, kindly report the name of the delegate.

The President: Mr. Secretary, just one moment. In order to put in the time while the roll is being called I desire to appoint a committee to wait upon the Governor, who will favor us with an annual address. On that committee I take pleasure in appointing Messrs. C. H. Ganson, of Champaign County, William McGeorge, of Scioto County, and R. M. Eaton, of Belmont County.

Thereupon the roll call of counties was completed, and the committee escorted the Governor to the rostrum.

The President: Gentlemen, it affords me very much pleasure to have the honor of introducing to you the Governor of the State of Ohio, Hon. **Geo. K. Nash.**

ADDRESS BY GOVERNOR NASH.

Mr. President and Gentlemen:

I understand that for this day you are all members of the state board of agriculture. I want to return my thanks to the committee for asking me to be present with you, and I desire also to thank you for the very kind reception which you have given me.

I congratulate you upon the good work which your board has done in the past, and I hope that in the future the work which it will accomplish for you will be greater than it has been heretofore. Last year you gave a splendid exposition upon your grounds in this city. They have been improved until you now have the best fair grounds in the United States. Upon these things I congratulate you, and express the hope that in all the future you may do great good for the agricultural interests of Ohio.

I would like, if possible, to say something that will be of interest and profit to you, and I hardly know what I can say. In thinking about this matter a scene came before me which I met last fall. I was called upon to attend the opening of the Ohio State University, when all the students were assembled in one body for the first time in their auditorium. There I found twelve hundred of the young men and women of Ohio. A finer body of young people I never faced in all my life. They were full of hope. They were full of ambition. It occurred to me that you might possibly take pleasure in knowing something about the present condition of this institution. It is upon this subject that I desire to talk to you for a little while.

The people of Ohio have ever been proud of the educational facilities which have been furnished to her children. This, perhaps, has been the foundation stone of our prosperity, and of our happiness. The men who framed the celebrated Ordinance of 1787 declared, among other things, that education is essential to the happiness of mankind. That injunction the people of Ohio have ever kept in mind, and our people have grown great and strong on account of having remembered it.

We ought to rejoice in the fact that we have a State University in Columbus which now has enrolled more than fourteen hundred students. We ought also to rejoice in the fact that the agricultural interests of the state are not neglected at that institution. It belongs to the farmers of Ohio more than to any other single class of people, and they are availing themselves of the opportunities which are here presented for the education of their young people.

It is a fact that one year ago 561 of these students were the sons and daughters of the farmers of Ohio, 178 of merchants, 100 of manufacturers, 89 of lawyers, 77 of doctors, and 46 of railway employes.

From these figures it is apparent to you that the farmers of Ohio are availing themselves very largely of the benefits afforded by this institution.

In the University there are six colleges. The first is what is known as the College of Agriculture. For its uses Townsend Hall has been erected, and it is the finest equipped agricultural college building in the United States. (Applause.) I am also told that it is a fact that most of the graduates of that part of the University are now engaged, since graduation, in agricultural pursuits. (Applause.) There are but few of them who have left the calling of their fathers. In it there are today nearly two hundred students.

There is the College of Arts, Philosophy and Science. Four hundred and fifty students are in this department.

There is the College of Engineering. This embraces six kinds of engineering—

electrical, mechanical, mining, industrial, chemical and ceramic. In it there are now about five hundred students. This is one of the most useful departments of the University. On account of the discoveries and advancement made in recent years, which have been of vast importance, and of which all our country is proud, learned men in the work of engineering are needed. Possibly this work is the most important and lucrative of any that is opening to the young men of today. If I had a boy I would advise him rather than to enter any one of the learned professions to avail himself of the great opportunities opening in this direction. It is a fact that of the young men who have been graduated from this department, there is not one to-day, who is a reputable graduate, who does not have good, lucrative employment. In 1895 a young man was thus graduated. Immediately he entered upon work for the General Electric Company. He was first assigned to New York. Shortly after he was transferred to Berlin to look after their work there. Today he has been assigned to London, and it is his duty to perfect all the contracts made by that great corporation in Europe. Today there are one hundred applications on file in this department for good competent men. This illustrates the useful work which this college of engineering is doing for young men, and of the opportunities which await them if they do their work well.

There is the College of Pharmacy, and also a college of Veterinary Surgery. All of these furnish useful employment.

There is the College of Law. Possibly some of the gentlemen before me may think that this is not such a department as ought to be connected with the Ohio State University. It seems to me, however, that your young men ought to be given an opportunity to enter that learned profession if they desire to do so. It is a fact that of all the great lawyers in the large cities of Ohio, more than one-half of them were at one time farmers' sons. Their training in early life, the good habits which they acquired upon your farms, the good instruction which you gave them at home, well qualified them to enter this learned profession. I am glad that this is so.

I have said this much about our State University because I know that the agriculturists of Ohio always rejoice in anything that will promote education and learning among the people, and especially among yourselves. Your sons, many of them, could not avail themselves of opportunities of going to large Eastern colleges. This University opens the door for them without the great expense which would attend such education were it not for this University. I congratulate you upon the fact that we have the Ohio State University, and I bespeak for it in all the days to come, and so long as this institution is worthy of it, your cordial sympathy and support. I do this because I believe it is for your good. What is for your good is for the benefit of all the people of Ohio. The spread of education and morality among our people will make our state greater and stronger in the future than she has been in the past. I am sure that for this all of us earnestly pray and hope. I thank you for your kind attention. (Great applause.)

The President: Gentlemen, I do not know of a more apt subject that could have been selected by the Governor for his topic this morning. I feel that we all should be grateful to him for explaining that which perhaps you can read about, but to have it clearly demonstrated to you in the language in which it has been put, is much better than to get it from pamphlets or circulars that are sent out. Consequently I feel very much gratified at the selection of the topic made by the Governor, and thank him very kindly.

And now, ladies and gentlemen, it has been the annual custom for years for the president of the State Board of Agriculture to deliver an address on the occasion of the annual meeting. I do not propose to inflict upon you a lengthy address. What I have to say will be altogether in the interest of the agriculturists of the state of Ohio. I shall endeavor to say this in as few words as possible. I shall not devote the entire morning to eulogizing the work of the State Board of Agriculture, but more particularly upon the elegant surroundings that we have upon the state fair grounds. Day before yesterday this board accepted from the contractor one building on those grounds that is and always will be a credit to this or any other country. I speak now of the horse building, and I believe that that building will contain----that is, we hope it will contain----it is capable of containing----500 head of horses. I do not think it has an equal in all this country. The beauty of it all is that it is complete. The stalls are large and roomy. The stallion stalls are so situated that they can have full sway. Nobody bringing horses to the state fair next year will complain of the meagre space in which to keep them. We have also provided for the attendants. This is a little outside of the address that I have here, but I can not help speaking of this particular barn, because I have said nothing in the address concerning it. Now, with your permission, I will read what I have written.

ADDRESS OF PRESIDENT GRIMES.

Away back in 1846 the first meeting of the State Board of Agriculture was held in the City of Columbus in compliance with the provision of law passed on February 27 of that year, but not until December, 1848, was it resolved to hold the state agricultural fair the following September, 1849. This fair was to be held at Cincinnati, but, owing to an outbreak of cholera in that city during the summer it was decided to postpone it for a year. Arrangements were then made to hold the fair in September, 1850, but another epidemic of cholera caused a postponement until October of that year, when the first state fair was held at Camp Washington, near Cincinnati. The fair in those days was considered quite a success, the receipts from all sources being a fraction over eight thousand dollars.

The state fair was not permanently located until 1874. There may be some members here who are familiar with the migratory way in which the state fair was held, but in order to refresh their memory and to impart the knowledge to those who are unfamiliar, I will give the dates and cities in which the state fair was held up to 1873, previous to the location in Columbus.

Fairs were held in Columbus in 1851; Cleveland, 1852; Dayton, 1853; Newark, 1854; Columbus again, 1855; Cleveland, 1856; Cincinnati, 1857; Sandusky, 1858; Zanesville, 1859; Dayton again, 1860 and 1861; Cleveland, 1862 and 1863; Columbus again, 1864 and 1865; Dayton, 1866 and 1867; Toledo, 1868 and 1869; Springfield, 1870 and 1871; then to Mansfield in 1872 and 1873, with the final permanent location on the Franklin County Agricultural Society's grounds in 1874.

The board has held fairs annually since 1850, with the exception of 1888, when the Ohio Centennial was held on the state fair grounds, which centennial is, no doubt, fresh in the recollection of all of you. In 1886 the state board of agriculture purchased the present fair grounds, upon which is annually held the Ohio state fair.

I have now brought the Ohio state fair to your notice from its organization up to 1886, when the removal occurred to the present grounds. At that time it was supposed that the buildings erected upon the grounds and the improvements made would be so commodious and of such a permanent nature as to avoid the necessity of any further improvements for years and years to come, drawing a comparison, of course, with what had been done in years gone by. But as the years rolled on and the improvements in every branch of industry and mechanical affairs enlarged it became necessary in this as well as all other states to look about for more space in order to accommodate the increased patronage of exhibits at the Ohio state fair. The purchase of an additional twenty-five acres of ground was the result of deliberation of the state board of agriculture, and it proved to be a splendid piece of financial engineering. This, added to our already large possessions, has given us sufficient ground to accommodate for the time being all our exhibits.

The next step was to improve these grounds by the erection of suitable buildings. I do not deem it necessary to go into details as to how this was done, but the result has been accomplished, and today we have, what I can say, fearing no contradiction on the part of any one, the finest fair grounds, the most commodious buildings and the best-managed fair in the United States.

I will admit that the assertion I have made is covering a great deal of territory, but personal knowledge, and complimentary notices from fair managers and exhibitors and persons who are familiar with all the annual exhibits given in the United States by agricultural societies in which they have acknowledged what I have asserted here to be true, justifies me, of course, in the remark that I have made. The State of Ohio can justly feel proud when it can lay claim to state agricultural fair grounds that exceed all others.

I do not think it is desirable to occupy your time by going into a resume of the costs and the many trials and tribulations that the board has gone through in order to give to the citizens of Ohio this magnificent property. Knowing that we have it, and it is there for your benefit and for the benefit of your children's children as an educator, as only a state fair can educate, and which is the best mode of education that one can possibly conceive, is sufficient evidence, and the state board of agriculture in connection with this meeting, which, of course, has just as much interest in it, can feel proud of the situation.

The state board of agriculture was organized as an institution for the purpose of educating the agriculturists of this country in the latest-improved methods of conducting a farm. To illustrate to you how successful they have been in the matter of education, I will briefly refer to the increased classification that has resulted from the exertions on the part of the members of the Ohio state board of agriculture in the encouragement of classes of domestic animals.

Back in the 60's we had but one class of thoroughbred cattle; all that had any pretention to pure blood were classed under one head. Under another head was classed oxen, steers and fat cattle. Now we have some sixteen or eighteen distinct breeds of cattle, having their own registers and herd books.

In horses we had but three classes, thoroughbreds, roadsters and draft horses. Now we have many distinct breeds recognized as roadsters. This is also true of sheep and swine. The improvements in those have been as marked as in cattle.

In poultry there were just four premiums offered for recognized varieties, requiring as many lines in the premium list to enumerate. Now it takes eight or nine pages of a large premium list to enumerate the many varieties of poultry and water fowl that are annually shown at our fair, and the immense amount of money invested and produced by the poultry interests is something wonderful to consider. I devote a little more space to poultry than I do to other industries mentioned here for the reason that few people are familiar with the vast amount of money that is invested in that industry and the vast returns received by the investors; in fact, I would recommend more interest, if possible, to be given to it by the agriculturists of the state.

It is no stretch of imagination, but an actual fact that we have in Ohio in round numbers 705,000 head of horses valued at $26,683,000; 1,000,334 head of cattle valued at $24,295,000; 2,516,000 head of sheep valued at $7,000,000; 1,600,000 head of swine valued at $5,000,000.

This large increase of valuable stock, no one can deny, has been brought about by the encouragement of agriculture and the ambition of the raisers to improve and excel their neighbors.

If by our exhibits we encourage the introduction of this improvement and a diffusion of better blood and fixed types, and the price of horses is increased to an average of but a single dollar per head, and cattle the same; and if sheep and swine through the same cause are increased but twenty-five cents a head, we add a total increase to the live stock of the State of Ohio of almost $4,000,000. The same rule that governs the increased value of the live stock in the state, the same educator which teaches the agriculturists the value of purchasing good live stock, applies in the same manner toward the improvements in grain and other products of the farm.

We produce in Ohio, annually, an average of 40,000,000 bushels of wheat, 95,000,000 bushels of corn, 340,000 bushels of rye, 31,000,000 bushels of oats, 600,000 bushels of barley, 2,500,000 tons of hay, 50,000 pounds of tobacco and 11,000 bushels of potatoes, and so on proportionately through the various farm products.

Now, if, through the efforts of the Ohio State Board of Agriculture, which is supposed to be the head of the agricultural affairs of the state, this vast increase which I have given you has been brought about, you can fully understand that it implies no small amount of labor on the part of the members of the agricultural department of the State of Ohio.

Do not misunderstand my meaning in this respect. I do not claim that the Ohio State Board of Agriculture has been the only factor whereby all this improvement has been brought about, but I do claim that the opportunities afforded by the labors of the State Board of Agriculture in behalf of the agriculturists of the State of Ohio, and which have been taken advantage of by every progressive farmer in the state, is the cause of this vast improvement. You will admit that everything, not only in agriculture, but in business of all kinds, requires an example, and that example properly set brings about anticipated results. This is exemplified to us every day. The State Board of Agriculture and the state agriculturists of Ohio have been setting this example for years, and I point with pride to the activity in which it has been taken up by the agriculturists of this state to their advantage.

With this brief review upon the state fair, which to the majority of you, I presume, in your own minds, covers the work of the State Board of Agriculture, I will leave it with the statement that I shall, no doubt, be able to convince you before I have finished, that the state fair is not the predominating feature of the work of the State Board of Agriculture; at the same time there are other matters that occupy the attention of the officers of the State Board of Agriculture from the first until the last day of the year, matters that are of more vital importance to the agriculturists in the State of Ohio, and much more so directly, than the state fair ever will be.

FARMERS' INSTITUTES.

One of the most important features in connection with the Ohio State Board of Agriculture is its farmers' institutes, and one that requires more time from the officers of the State Board of Agriculture than any other factor connected with the running of the state agricultural department—not only requires more time, but is considered by the members of the state board to be one of the crowning institutions connected with that board. In fact, the farmers' institute division of the department of agriculture has become of such vast importance that it requires the undivided attention of two clerks in the department the entire year, and occupies very largely the time of our secretary.

Beginning with twenty-seven institutes and an appropriation of $1,000 from the state fair earnings, the number has rapidly increased until we have now two hundred and sixty-one institutes, with a liberal provision by the general assembly for their maintenance. Since 1895, when our present efficient secretary took charge of the work, the number held each year has nearly doubled and the appropriation has been increased to provide for this extxension. We have now an average of nearly three institutes in each county, every county taking part in the work, and have reached the very limit, in point of numbers, that we can provide for under the present law, and stil the cry comes up from many localities every year for the recognition of additional societies.

From necessity several petitions are denied each year, and in a few cases the petitioners feel that they have been discriminated against, but generally speaking they recognize the fact that where all can not be provided for it is wise to use a system of rotation, thus giving each community requesting it an institute occasionally, rather than establishing one at the same place year after year to the detriment of the less fortunate localities. By this method it sometimes happens that an institute held in a new place will seem to lack the interest and enthusiasm manifested in the meeting of an older society, and, the community being smaller, the attendance will not make as good a showing, but the wisdom of the arrangement is always made manifest in the amount of good accomplished. Every detail is gone into with painstaking accuracy, every request is carefully considered, and every letter, no matter how unimportant, receives a prompt and full reply. The entire division has been brought to as near a *perfect* system as one often finds, and it is not enough to say that it compares favorably with the institute routine of any other state in the Union; it goes far and away beyond them all, so that there can hardly be comparison. This is not said in a spirit of boastfulness; it is a simple fact which anyone can verify by comparing our Institute Bulletin with those of other states.

At a meeting of the State Fair Association at Chicago in December last, I had occasion to speak to several secretaries and presidents of other fairs regarding the vast importance which our institutes had attained in Ohio, and each one expressed his surprise at the number of institutes that were held in our state, and acknowledged they were the best means of educating the agriculturists that could be adopted, which is, no doubt, a fact. It brings them together in the fall and winter when they have plenty of time to discuss among themselves the past summer's work. It not only is an educator in respect to improvement that they may derive from the knowledge given them by the lectures, but it creates a social intercourse at a time when it is a pleasure for them to be together. This in itself is worth all that the institute costs.

I would advise that the law we have now, which, it seems, is inadequate in its provisions to supply means for the demand for institutes, be so amended that it will cover a field large enough to give an institute in every locality where it is deemed advisable by the State Board of Agriculture, as they certainly come next to county fairs—in fact, I might say, as an educator, they are fully equal to county fairs, and for social purposes I believe they exceed them.

COMMERCIAL FERTILIZERS.

I believe that I can say, and say it safely, and fear no contradiction on the part of this meeting, that few people are familiar with the necessities that arise for the protection of the farmers in the matter of commercial fertilizers. I can remember ten years ago—no, less than that— that while the State Board of Agriculture had charge of the fertilizer industries of this and other states with the object in view to eliminate if possible undesirable, unprofitable goods, I might say, goods that were made only to be sold, still that point was not accomplished as it should have been. Three years ago under the present State Board of Agriculture, that is, the majority of the members, we had the greatest fight with the manufacturers of commercial fertilizers that ever was put up by any state in the Union. I will not go into the details, trials, and I might say tribulations, that were gone through at that time. But the matter, as perhaps some of you are aware, was brought into the legislature and their protection, as the manufacturers put it, asked for.

Now I am not referring to all the manufacturers of fertilizers when I make this statement, for some of them were thoroughly satisfied with the manner in which this board took up their cases, but I am simply referring to those who did not acquiesce in the action of the State Board of Agriculture.

The object of this fight was to eliminate entirely from the State of Ohio all undesirable brands of fertilizer, to eliminate bogus dealers and to be able to protect the farmers of the state against buying something that would be a detriment instead of a benefit to them in the way of commercial fertilizers. Still I can say that today there are more brands of fertilizer licensed for sale in Ohio than ever before, and the care which is bestowed upon the analysis and the zeal which is given to the enforcement of the law has saved the farmers of Ohio thousands—yes, millions of dollars. This department of agriculture has become, from the income of insuing such license, self-supporting.

Years ago it was a rare thing to receive from a farmer in the State of Ohio an application for a report on commercial fertilizers; today thousands of letters are received from the farmers in the state asking for copies of the official report on commercial fertilizers. The fact to be deduced from this is, that the farmers are fully aware that when they get the official report on commercial fertilizers from the secretary of the State Board of Agriculture the same can be relied upon; that every fertilizer that is analyzed in the report is correct, and there is no necessity of asking further questions. They feel that in this official report they have a safeguard, and it does not require the farmer to be a chemist in order to get such fertilizer as he wants to use on his soil.

When I say to you, gentlemen, that this one feature of the State Board of Agriculture has become of such importance that it is recognized all over the United States as being paramount to all others, I assure you that we may feel proud of the situation.

Ohio, in the past five years, has become one of the most prominent agricultural states in the Union so far as improvements in agriculture are concerned—in fact, I might say more than ten times as prominent as any other state. Her institution system is away beyond all others; her fair and fair grounds exceed all others; her mode of protecting the farmers against the use of any but first-clas brands of commercial fertilizers is such that it is being followed by different state agricultural societies the country over. The present situation has all been accomplished within the last five years, with all due respect to what was accomplished the preceding years during the lifetime of the Ohio State Board of Agriculture.

It is a source of great pride for me to come before you and say truthfully that we have in the State of Ohio the best-regulated laws for the interest of agriculture so far as it pertains to the Ohio state agricultural department that there are in existence, and to further state that they are followed by the officers of this department to a letter; such a thing as deviation is not known in our board.

I can not close my remarks, nor would it be fair nor just to close them, without giving credit for the situation which now exists as to the general prosperity of the State Board of Agriculture. With all due consideration and respect to the officers who have preceded the present ones, I will say, that the whole system of the department of agriculture which brings it up to its present high standard has been adopted within the past five years. The institute work has doubled itself, which I have stated to you; upon the Ohio state fair grounds has been erected some $400,000 worth of the most magnificent state fair buildings that can be found anywhere; additional land has been purchased, as I have stated heretofore; the farmers are being protected in every way possible, and while we have as members of the Ohio state board, men who are as true as steel, men whose characters are well known, it requires in connection with this a head.

Our board consists, as you are aware, of ten members from whom is elected a president. While these ten members devote a great deal of time to the interests of the state department of agriculture, for which they receive no compensation, their combined efforts fall far short of the labors which devolve upon our secretaries.

I can safely say to you, gentlemen of this meeting—in fact, I know I will be sustained by every member of the present State Board of Agriculture—that in the past five years, as I have said before, all the improvements, all the increased power that has been derived by the State Board of Agriculture has been brought about, by suggestions, by labor and by untiring efforts in the interests of the agriculturists of the State of Ohio, by our secretary, W. W. Miller.

There are few if any gentlemen within the hearing of my voice who have the least idea of the labor and responsibility connected with the Ohio Department of Agriculture. Just think for one moment of the vast amount of responsibility there is at the present time connected with the running of the state agricultural department, which I can safely say today exceeds any department so far as labor and benefits to agriculturists are concerned, in the United States.

This was not the case ten years ago. The State Board of Agriculture of Ohio ten years ago was unknown, comparatively speaking, to what it is today. It is a factor today in every branch of the State's industries. All this has been brought about by the industry and ability of our present secretary.

Of course you understand thoroughly that the members of the state board in each and every instance have acted with our secretary and advised him, but, as said before, no matter how much intelligence there is in the board there must be a head to everything to map out and outline This has been accomplished, and to the thorough satisfaction of our board, by Secretary Miller.

Assistant Secretary Fleming has an entirely different line in the Department of Agriculture to Secretary Miller. His department is confined more to organizing and getting in shape for the annual exhibits, and to say that he does it well can only be emphasised by stating to you that he has been elected from year to year to the position he now occupies, for the past thirty-two years. In Mr. Fleming our present secretary has an able assistant and adviser.

As president of the Ohio State Board of Agriculture, I say to you, gentlemen, that I am proud to be able to stand before you and eulogize officers of the character of the two gentlemen I have mentioned, and do it knowing that every word spoken is more than deserving. It is a pleasing duty for me.

The President: Gentlemen, the next order of business is the report of the treasurer of the State Board of Agriculture. Mr. L. G. Ely, our treasurer, as perhaps some of you are already aware, has been sick for something like two months. He made an extraordinary effort and is here with us today, but he was advised that it would not be to his benefit to attempt to read his report, and he asks the permission of the meeting to permit the Secretary to read it for him. I hope there will be no objection on the part of anyone.

ANNUAL STATEMENT,

Showing the Financial Transactions of the Ohio State Board of Agriculture for the Year Ending December 31, 1900.

The following statement is summarized from the itemized accounts presented in the journal and ledger, showing the transactions for 1900, and also the general financial condition of the board.

Receipts, including balances from last year, are shown in the accounts of the treasurer and the several state appropriations, while the agricultural fund account presents the conclusive financial condition, not considering assets, other than balances in the various funds.

All disbursements have been by orders and checks signed by the president and secretary. Respectfully submitted, L. G. ELY, Treasurer.

RECEIPTS.

FROM STATE APPROPRIATIONS.

BALANCES FROM LAST YEAR.

For Encouragement of Agriculture	$1,680 50	
For Contingent Expenses	802 94	
For Crop and Stock Reporting Service	376 50	
		$2,859 94

STATE APPROPRIATIONS MADE BY GENERAL ASSEMBLY FOR 1900 AND 1901 AS FOLLOWS:

For Encouragement of Agriculture for 1900 and first quarter of 1901	$14,700 00	
For Payment of Old First Mortgage Bonds, due July 1, 1900	5,000 00	
For Payment of Old First Mortgage Bonds, due July 1, 1901	5,000 00	
For Interest on 1900 and 1901 Old First Mortgage Bonds.	600 00	
For Interest 1900 and 1901 on $80,000 five percent bonds of April 12, 1898, authority	8,000 00	
For Interest 1900 and 1901 on $120,000 of five percent bonds on authority, March 29, 1900	8,000 00	
		41,300 00
Total from State Appropriations		$44,159 94

MISCELLANEOUS RECEIPTS.

Charged to Treasurer—		
Balance in hands of Treasurer at beginning of year	$311 54	
From Farmers' Institutes, per capita collections, season of 1899 and 1900	8,173 36	
From Fertilizer Licenses	12,200 00	
From sale of $120,000 five percent Bonds with premium and accrued interest	126,300 00	
From Interest on Bank Deposits	817 67	
From sale of two horses	220 00	
From sale of old buildings	100 00	
From sale of old material	42 07	
From sale of old engine	75 00	
From sale of hay	97 13	
From rent of house and stable	67 00	
From repairing private buildings	46 70	
From discount and cancelled insurance	252 33	
Total miscellaneous		$148,702 80

PROCEEDS OF STATE FAIR.

From sale of full admission tickets	$20,957 70	
From sale of children's half tickets	524 00	
From sale of grand stand tickets	2,218 50	
From sale of wagon tickets	34 00	
From sale of privileges	3,396 80	
From class entrance fees	1,474 60	
From speed entrance fees	2,458 75	
From collections by American Trotting Association	32 00	
From Woman's Department, fees	10 00	
From rent of private machine buildings	190 00	
From Ohio Shorthorn Cattle Breeders' Association	188 00	
From surplus advertising fund	37 00	
Total State Fair		$31,521 35
Grand total receipts from all sources		$224,384 09

DISBURSEMENTS.

MISCELLANEOUS ACCOUNTS.

For old outstanding checks redeemed		$585 00
Bond redemption	5,000 00	
Expenses of members	2,355 12	
Express and freight	341 22	
Fair ground buildings and new improvements	99,594 82	
Fair grounds—ordinary repairs	2,514 02	
Farmers' Institute expense	8,218 73	
Fertilizer inspection and analyses, general labor and assistance and general supplies	8,110 06	
General printing	220 68	
Insurance	2,189 15	
Note redemption	6,500 00	
Interest on bonds	6,450 00	
Interest on notes	118 76	
Office expense	4,421 45	
Postage and telegraph	1,839 40	
Salary of secretary (eleven and one-half months)	2,395 68	
Salary of assistant secretary (eleven and one-half months)	2,012 50	
Salary of stenographic clerk	900 00	
Salary of clerk (Loewer)	900 00	
Salary of clerk (Ramsdell)	720 00	
Salary of statistical clerk (ten months)	750 00	
Salary of janitor	540 00	
Salary of superintendent of fair grounds	600 00	
Total miscellaneous		$156,691 59

STATE FAIR PURPOSES.

Expense of Horse Department	320 05	
Expense of Cattle Department	212 30	
Expense of Sheep Department	89 50	
Expense of Swine and Poultry Departments	218 03	
Expense of Machinery and Agricultural Implement Departments	805 07	
Expense of Mechanics' and Manufacturers' Departments	97 00	
Expense of Farm Product, Fruit and Floral Departments	204 05	
Expense of Woman's Department	639 59	
Expense of Secretary's Department	344 85	
Expense of Treasurer's Department	676 00	
Subsistence	253 00	
Refund entrance	11 50	
Premiums	15,746 18	
Printing and advertising	3,647 35	
Labor and assistance	2,450 80	
Material and supplies	679 72	
Expense of electric light	818 57	
Total State Fair		**27,213 56**

Total disbursements on all accounts as per checks and orders issued		184,490 15
From which deduct the outstanding unpaid checks of present year		770 80
And there is shown actual disbursements from all funds.		$183,719 35
Deducting the actual disbursements from the total receipts from all sources, there is shown balance cash on hand, all funds		$40,664 74
This balance consists of—		
Cash in hands of Treasurer	$25,476 76	
In State Appropriations—		
For Encouragement of Agriculture	37 98	
For bonds and interest	15.150 00	
		$40.664 74

LIABILITIES.

For old first mortgage 6 percent bonds still outstanding	$5,000 00	
For outstanding 5 percent bonds, issue of 1898	80,000 00	
For outstanding 5 percent bonds, issue of 1900	120,000 00	
For outstanding unpaid checks of 1900 and former years	1,128 75	
Total liabilities		$206,128 75

PROPERTY VALUE.

State fair grounds, buildings and improvements, figured at cost up to the close of 1899	$408,285 37	
For buildings and new improvements during 1900, there was expended, with some contracts not yet fully completed or fully paid, the sum of	99,594 82	
Showing total cost value		507,880 19
Being in excess of all liabilities		$301,751 44

The President: The next matter of business is the report of the Auditing Committee.

REPORT OF AUDITING COMMITTEE.

COLUMBUS, January 15, 1901.

Ohio State Board of Agriculture, Gentlemen:

The undersigned auditing committee have performed the duty of examining the financial records and accounts of the board, and beg leave to report that we find the financial transactions completely set forth in the journal and ledger records, and the accounts are correct.

Your committee examined each item of expense ,comparing vouchers with the checks and orders issued in payment, and find all to agree and be correct. Receipts from the various sources are properly set forth, including balances from last year and balances on hand at the close of 1900, and the accounts throughout are clear and distinct, by reason of which they are easily analyzed.

All expenditures have been by checks or orders properly signed by the president and secretary.

The annual financial statement recorded in the journal at the close of the year's accounts is a complete and concise summary of the financial transactions for the year, as well as a correct showing of the general financial condition of the board. Commending the work devoted to the books and accounts, this report is respectfully submitted.

C. BORDWELL,
D. J. GREEN,
T. L. CALVERT,
Auditing Committee.

The President: The next order of business is the appointment of committees. I will appoint as the Committee on Credentials: Mr. W. I. Tenney, of Miami County; Mr. T. L. Calvert, of Clark County; Mr. Edgar T. Draper, of Scioto County; Committee on Resolutions: Mr. Jerry L. Carpenter, of Meigs County; Mr. W. S. Kinkead, of Adams County; Mr. D. L. Sampson, of Hamilton County.

The President: Now, gentlemen, the next business before this meeting will be the nomination of cadidates for members of the State Board of Agriculture. There are two vacancies to be filled, and nominations are now in order.

Mr. E. G. Biddison, of Athens County: I wish, Mr. President, to nominate for your consideration, as a member of the State Board of Agriculture, a gentleman whom we have learned to appreciate in this capacity in the southeastern part of the state. He is a man who has served in all the different capacities relative to a local board of agriculture, has taken a great deal of interest in all legislation in which the agriculturists of the state are interested, and a man who, we believe, will do good work in this capacity. I wish to nominate Hon. J. L. Carpenter, of Meigs County. (Great applause.)

Dr. A. L. Paul, of Putnam County: Mr. Chairman and gentlemen: I have the honor to submit the name of a candidate for membership on the State Board of Agriculture who is eminently fitted for the position both by nature and experience. He has been secretary of our fair association for the past six years, and largely through his instrumentality the receipts of our fair have been almost doubled during that time. He originated the idea that brains as well as stock should receive a premium and put it into practical and successful operation by inaugurating a department of education whereby our boys and girls from every school and in every grade may compete with each other by exhibiting specimens of their school work during the year. He is practical and full of resources and originality. Gentlemen, I wish I could say as much for his beauty. But I take it that in a contest of this kind practicality, energy, resources and originality are of more importance than mere personal beauty. Gentlemen, I present the name of A. P. Sandles, of Putnam County.

Mr. E. L. Lybarger, of Coshocton: Mr. President and gentlemen: I understand that agriculture is the art of producing and rearing such animals and plants as conduce to the happiness of mankind. I take it that a member of the State Board of Agriculture ought to be proficient in this art; as a man possessed of the qualifications necessary, not only to produce agricultural products, but as a man who possesses practical common sense of transacting all the business of life successfully, I nominate Mr. J. P. Darling, of Coshocton County. Mr. Darling was born on the farm, grew up among the shorthorns and since he has arrived at man's estate has been engaged in the diversified employments of the farm. He has made it a success and he is today one of the most enterprising and successful farmers of eastern Ohio. A gentleman by birth and by instinct, genial, courteous and companionable, and whose reputation and character are above reproach. For several years last past he has been president of the Coshocton County Agricultural Society. Under his management our grounds have been improved, our revenues increased, and I undertake to say that he is giving an agricultural exhibition that has not been excelled by any other county in the state of Ohio. Elect him to the position which he seeks, gentlemen, and I assure you that he will bring the energy, the industry and the intergrity to the discharge of the duties that he may be called upon to discharge, in whatever department he may be assigned, that will vindicate your judgment upon this action.

Mr. Jas. L. Orbison, of Hamilton County: Mr. Chairman and gentlemen: I am a good deal like Brother Ferguson, of Montgomery, who made a remark last night that he had no idea that he would ever make a speech in the state house. Likewise, I never believed that you would hear my voice in the Senate chamber of the state. But I assure you, Mr. Chairman and gentlemen, that I wish to present today the name of a man that was reared within the confines of Hamilton County, twenty-five miles from Cincinnati, and who has been in the fair and agricultural interests for the last twenty-five years. He has been secretary of the Hamilton County Agricultural Society for six years. He has been identified in every interest, no matter where, on the track, in the judge's stand, in any capacity, honest, upright and straight. The gentleman I wish to nominate is known to a great many of you and you know him well, and I feel positive that if you elect him as a member of your board, that you will make no mistake. I present the name of David L. Sampson. (Applause.)

Mr. J. A. Pringle, Madison: Mr. Chairman and gentlemen: I desire to nominate a gentleman for a position on this State Board of Agriculture from that portion of the state that we think has not received its proper representation on this board. The members of this board are principally composed of men from the southern and western portions of the state, but the northeastern portion of the state has not received its due recognition. The gentleman whom I desire to place in nomination is from one of the leading agricultural counties of the state, a county that for fifty years has held its regular annual county fairs, and in that time it has never failed to pay its premiums and pay them in full. Now, gentlemen, the man whom I desire to place before you for your consideration is C. A. Tope, of Carroll County. He has been secretary of that board for eleven years, and is a gentleman of the highest character and undisputed qualifications.

Mr. W. H. Owens, of Ottawa County: I wish to present for your consideration, gentlemen, a qualified farmer, a man who has earnestly and efficiently been connected with the fair of his county for many years and whose county has never had a member of the State Board of Agriculture, a man whose entire interests are in the farm, and if elected to the State Board will do very efficient work. Gentlemen, I ask your support for Mr. William Miller, of Gypsum, Ottawa County, Ohio.

Mr. Edgar T. Draper, of Scioto: Over in the northeast direction from here a few miles there is a stream on which there is a falls called Niagara Falls. I remember of hearing a story of a German professor who came all the way from Europe to see those waters—some of you, and perhaps all of you, have been there—with some of the smaller streams and falls, and as he approached the large falls—each one that he came to he had an adjective to hitch on to describe it, but as he came to the great Horse Shoe falls he had exhausted all his adjectives, and he says "Vell, dots pretty vine!" Now, we have had the oratory from all these gentlemen expressing sentiment in favor of the candidates that have been presented for disposition by the members of the State Board of Agriculture. It seems to me that we are here to look at the matter more from a business standpoint. The gentlemen named doubtless are very good men. I rise to second the nomination of Hon. J. L. Carpenter, of Meigs County. Now, I do not think it is necessary to go into further details than has been done. Simply to refer to the fact that he is a successful farmer. In his capacity as a member of the Ohio Legislature he has always taken an active interest in the farmers; the agricultural societies, as bodies and as individuals, have never asked anything of him that he didn't take up with pleasure and desire to execute for their interests. Those who know him best speak of him in the familiar form of "Jerry" Carpenter—Senator Jerry Carpenter. Those who know him best love him as a brother

And his capacity, ability to fill this office, no one doubts who knows him, and he has the ability which is necessary. He has the experience which is necessary for some few of this board at least to have. There are many things to be brought up in connection with the legislative powers that he would be familiar with and know how to approach. And his whole soul and interest have been in this direction for years. He has never asked such a position as this. He didn't seek it on this occasion, but a number of his friends have asked him to take this position. In talking with such delegates as I have met last evening and this morning I find there is a great deal of sentiment in that direction among a large number of them. I think we can not do better than to elect Hon. J. L. Carpenter as one of those gentlemen to serve in this capacity.

And thereupon the meeting recessed until 1:30 o'clock p. m.

AFTERNOON SESSION.

Promptly at 1:30 p. m., pursuant to adjournment, the president called the meeting to order, and announced that the first thing in order would be the voting for candidates for election to membership in the State Board of Agriculture.

Thereupon, on the first ballot, Hon. J. L. Carpenter was elected to membership.

Mr. Carpenter, being called to the rostrum by the chair, spoke as follows:

Mr. Chairman, I do not think this is on the program (laughter), and I am always in favor of sticking to the program. But I want to say to these gentlemen that I feel complimented, I feel honored, and thank you for the compliment and courtesy of your votes. Gentlemen, the only misgivings that I have in this matter is I distrust my ability to make as good a member of your board as your vote of confidence will demand. The State Board of Agriculture of Ohio, in its wisdom, has built up one of the best expositions upon the American continent. It has wisely determined that the fair must grow bigger or grow smaller, and it has wisely chosen the former. Now, gentlemen, it will be my purpose to do nothing to hinder the progress that is being made. I am glad to see the improvement that has been made by this Board. I appreciate something of the work and the thought and care that these men have had to exercise to accomplish these great results. They have not only had to look out for making the exhibitions, but they have had to importune the legislature for means to carry on that work. Their work has been approved by the people of Ohio and by the legislature of our state. The legislature of the state has been very generous and enabled the agriculturists to build up an institution that the whole state may well be proud of. Possibly we might find somewhere in the borders of Ohio some man who might think that the Board is spending too much money. If there be any such they need but think a moment to consider the value of the property that belongs to the state of Ohio, and for all the expenditures made upon the grounds and buildings and fixtures the state could realize in cash any day a larger dividend and make a better investment than you have made on any other institution in this state. When you appropriate money for the State Board of Agriculture, and it has been spending it as it has within your grounds, you are adding to the wealth of the state, and any time that you are disposed to dispose of that property the state would have a large profit to put into her treasury. Gentlemen, I thank you for your attention. (Applause.)

On the second ballot the name of Mr. Darling was withdrawn, the result showing that Mr. William Miller lacked two votes of election. On the third ballot Mr. Sampson withdrew; also Mr. Tope, leaving Mr. Sandles and Mr. Miller the only contestants. The vote was close, Mr. Miller winning by four votes.

Mr. Miller was called to the rostrum and spoke as follows:

Mr. President and gentlemen of the State Board of Agriculture: Ever since I was a boy and went with my father to the state fair to exhibit Berkshire pigs, I have had a desire in my heart to become a member of this State Board of Agriculture at some time. And now, having been elected, if I should attempt to make a speech to you I should, I fear, defeat that ambition, for I know you would be tempted to reconsider your vote. (Laughter.) So I shall only say that I thank you sincerely for your support and for the place you have given me, and I assure you that the duties of the board which may be assigned to me will be discharged as well as it is possible for me to discharge them. Again I thank you for your kindness and your support.

Mr. Sandles being called upon, responded as follows:

Mr. Chairman: The speech that I intended to make will not fit this occasion (laughter). The endorsement of your wife does not always go (more laughter). Benjamin Franklin said that it was his policy never to ask for an office, never to refuse one, and never to resign one. I am guilty of the first, but not guilty of the other two (renewed laughter).

I want to say to you that it has now been twenty years since out on the farm I left the log cabin and went to the county fair barefoot, and when I stand here today complimented as I have been by you gentlemen, although defeated, I still have a right to feel proud of your estimation of me. Now, it is true that I have left the farm, but we all know, every man knows, that there is not a great scholar today, and never has been a great artist, philosopher or anything, but what he came from the farm. I may say to you that I am what you might call a "farm product," home grown, hand-spanked (more laughter). I would indeed have been proud to have been a member of the State Board of Agriculture. I was perfectly willing to associate with the gentlemen who are members. Now that privilege has been denied me, but I want to say to you that I hold no enmity toward anyone. A man who goes into this game—of politics we might call it—must be content with the result. If he can not be, he has no right to go in. I would have been gratified to have been successful. You know that it is wrong to bet and—lose (laughter). Now, I want to say to you that I sent out a little circular, and I want to say that if you will put the potatoes in a sieve and shake them up it is the little fellows that get through—(laughter). I want to retract that statement (more laughter). Now, I hope that I am liberal enough to say to you that I believe conscientiously that the other members of this board, that the members who were successful, are as well qualified for the place as myself. I made the statement in writing that I would admit that they were all better fitted for the place than I was, but I do believe that I wanted it worse than any of them did (more laughter). And now I just want to repeat a little stanza by James Whitcomb Riley, that poet of nature who gets down close to the trials and tribulations of human life. I like to read him and I like to think about these few lines that run something like this:

"I have always noticed that great success
Is mixed with trouble, more or less;
And it is the fellow that does the best,
That gets more kicks than all the rest." (Laughter.)

The President: Gentlemen, we have on the program an address on "Stock Raising for Profit and Pleasure." This address has been assigned to Mr. G. H. Van Houten, secretary of the Iowa State Board of Agriculture, and I now take pleasure in introducing Mr. Van Houten to you.

Mr. Van Houten: Having been through years of experiences similar to the one witnessed here this afternoon, I can make due allowance for the necessary moving about and even the departure of those who came possibly for another purpose than to listen to papers or addresses. I realize that many of you have already been here several days and that your business interests demand your presence elsewhere. So I do not take it as a disrespect to me or those who shall come after me if you do not see fit to sit and listen patiently to the different addresses that will come on the program. In addition to the pleasure that I have had in this meeting I trust that I have also derived something of real benefit and profit. And I desire to say to you gentlemen, that if any of you in the future desire to visit Iowa, I trust that you will make it convenient to come during our state fair, which will occur the last nine days of August; and if any of you decide to come and will notify me in advance of your coming, I will see that you receive the coutesies of the department of agriculture. If you do not give this notice in advance of your coming and will make yourselves known upon your arrival we will do the very best we can to give you such courtesies as I have received at your hands since I have been here.

In discussing the question of stock breeding for profit and pleasure, I realize that I take a somewhat different line of argument from that usually presented in meetings of this kind. I do not, as a rule, read papers in public, but I have seen fit to prepare what I desire to say to you here in writing, in order that I may say in the briefest possible manner what I desire to say and in order that I may be able to quit when I have done.

So many people view stock breeding from a business standpoint only, and pay no attention whatever to the pleasure that may be derived from it, that it may be well to consider both sides of the question. It is hardly expected that people will engage in any kind of business from a sense of the pleasure alone to be derived from the occupation, and yet it is safe to assume that many do engage in business from a feeling of necessity for employment, and many others continue in business, long after the necessity that prompted the beginning ceases, largely from the pleasure that is derived from the occupation. There are also amateurs without number, who, while engaged in one line for profit, at the same time devote spare time and often much money in lines for pleasure, or for the information to be gained. It is only necessary for a person to visit a breeder of pet stock, or to talk with those who own pet stock, to appreciate the fact that pleasure may be derived from the possession and management of animals other than those that are depended on as money-makers. Again, a driving team, or even a work team, may be a great source of pleasure to the owner. Among the most pleasant recollections of the writer as a farmer is that of following a strong, willing team of horses to a plow, where the furrows were long and straight, and the team had such power that the work was easy and a pleasure, and the companionship of the team and the pleasure of the surroundings was not alone from the hope of reward in the crops that were to be grown. A more lasting impression was the ownership of an intelligent colt, trained to do almost any bidding; quick, alert, intelligent, brave and willing. Later, on the field of battle, the death of that horse left an impression, that, even now, after the lapse of more than a third of a century, seems more like the loss of a prized comrade than anything else. It is true that there is a companionship or comradeship in war felt nowhere else, and were the remembrance of this one horse only fresh in memory it might be attributed to the conditions and surroundings at his death.

The intelligence of animals is often underestimated. Animals have not only excellent memory, but often a great deal of intelligence. It is true that it requires time, patience and judgment to teach animals correctly, and it should be remembered that it takes a long time to correct faults in animals, especially in horses, but patient, intelligent care will pay in training horses for domestic use. Some years ago I was in office work at a considerable distance from home and desiring to ride, concluded to try turning the riding horse loose, allowing it to return home. After school in the evening one of my sons would take the horse to the office for me to ride home, and this continued until sickness prevented him from continuing the work. A neighbor boy was secured for a time, but the idea occurred to me to train the horse to go alone, and for five months, or until the necessity no longer existed, the trips were regularly made, the horse going home in the morning, and, after being saddled and turned loose in the evening, promptly going to the office to be ridden home. There were only two failures in all that time, and they were the result of a conspiracy, conceived in a spirit of fun by a lot of boys, who desired to see if they could drive the horse back, and twice succeeded, but the horse seemed determined not to be driven back the third time, and made such demonstrations that the boys became afraid and desisted, and so the faithful animal continued as long as the service was needed. Another trait or acquirement of the same animal might be mentioned to show the intelligence of animal reasoning. Office duty required only six days' service each week, but on the Sabbath the same horse was ridden to church and Sunday School. The habit had been formed of riding with rein over the horn of the saddle, and after a very short time the horse would turn to the rack near the church on Sunday, but on no other day. On week days the trip to the office was made an hour earlier, and this difference was sufficient to enable the intelligent animal to know where to go.

Many other instances could be given, but the ones noted will illustrate what every intelligent person knows, and that is that most animals are capable of a great deal of intelligent action, and, with good care and careful instruction, will amply repay for the necessary time in their education. Kindness and patience are prime requisites in the management of animals. It is true that you must make any animal know that you are its master, but you should be a kind master, not only for the success that is desired, but for the greatest satisfaction in management of animals.

Perhaps human beings find friends and companionship in dogs more frequently than in other animals, and the intelligence of some breeds of dogs is such that almost every animal of the breed is capable of great accomplishments. The shepherd dogs, perhaps, most fully illustrate the thought desired to be expressed. The profit, pleasure and ease of sheep breeding is greatly increased by the proper use of dogs. It is true that vicious dogs are a detriment to successful sheep raising, but that has little to do with the subject under discussion.

The important consideration is to so plan and so do that there will be both profit and pleasure in raising stock. That this can be done is abundantly attested by the success of many engaged in the business, and, when we consider that many engage in the business without thought of pleasure and that others engage with little or no prospect of profit, it makes the problem of combination a more important matter. That such a combination will be beneficial both to the owner and to the animals, none who contemplate the problem will dispute.

When domestic animals were allowed to run at large in the West a boy became noted for being able to find almost any animal he started out to find. On being asked how he did it he said that he tried to imagine that he was the animal he was seeking, and in this way came to the conclusion where to find it. That boy, without being able to reason out the fact, was a philosopher. He knew the wants and habits of the animals he dealt with; in fact, he was a close observer and made use of his observations, and would naturally become a successful stock breeder.

The importance of the subject and the length of time required to discuss it properly precludes the idea of speaking of all classes separately or of any at length, but to be more specific and for the purpose of giving views, some kinds of domestic animals will be named. Each owner or fancier will naturally be able to draw conclusions and make applications for his particular stock or pets, for one will take interest only in those that are necessary for domestic use, while others will be particularly interested in those that are not necessary to man's profit and are yet able to conduce to his pleasure or comfort.

Horses. Naturally to one brought up on the farm, later with experience in the far West and in the cavalry service, then with the experiences common to a life on the farm again, the horse takes first place. Some are passionately fond of horses. They are a necessity to modern civilization, and will be for ages to come, in spite of railroads, trolley cars, bicycles and automobiles.

Happy is the man who can get a profitable and pleasureable use of horses. The late Robert Bonner was the type of a man who could get pleasure to a high degree from contact with good horses, and who shall say that the large amount of money spent in the purchase and training of them was not money well expended? To the business man in the city a good horse or a team of horses is not an extravagance. Relaxation and pleasure can be obtained by their use, and often there is a desirable use aside from the pleasure. Even the driver of a dray team should get pleasure as well as profit from his team. We do not in this country, as in France and some other countries, see the general appearance of good will between the dray teams and their drivers, but it is only necessary to witness the apparent understanding between some teams and their drivers to realize that there is a peculiar pleasure in the contact, and the mutual confidence is beautiful to see. But on the farm, from the time the colt is first seen to old age and death, what an interest attaches to the faithful family animal. How early the colt begins to learn, and right then is the time to see that it does not learn bad habits. It is so easy to tease a colt, and it quickly learns to resent being tormented. The hired hand that will tease a child or a domestic animal should be deported at once. If the owner knows no better than to do such things there is little hope of pleasure or profit in stock raising, and but little prospect of his children making the best of life. The expert stock breeder will say that it is a great thing to be born right, and to be born right is to have been bred right, and after that of still more importance, if possible, is to be raised right. Each animal should receive separate attention, and while young should be handled and halter broken and taught to stand tied. It takes but a few times' haltering to teach the colt all this, for, being intelligent and receptive, it soon learns. At first it should not be tied, but only haltered and allowed to get used to be being restrained and then later it can be tied without danger. The young animal should be so treated that it will know that you are a friend, that what you want it to do must be done and that it will not suffer in the doing. To illustrate this, take a Percheron colt and compare it with a Texas bred colt of the same age. The Texan instinctively regards man as his enemy and acts accordingly. If the Texan is taken at an early age and treated right, it may be expected to be tractable and useful, but as generally "broken" by those who bring it to northern markets, is neither profitable nor pleasant to handle. Having had many Texans, not only of those bought young, but those at maturity when bought, I can recommend that for the man seeking pleasure and profit it is best to leave the last class alone, and yet what can be more satisfactory, not only for use, but for pleasure, than a good horse?

One man with whom I was talking about personal contact with each animal, said he had so many that he could not do this. Of course he had too many; in fact he had so many that there was no pleasure and little, of any, profit. There should be the most intimate and confidential terms existing between the horse and his owner. Balky horses are generally the result of being handled by balky drivers; high-mettled horses especially are easily spoiled, and yet it should be remembered that lazy horses are not capable of desired development. A lazy horse should be used in work that is suitable to his disposition. A race horse or a trotter should not be put to the dray or hitched to the plow, neither should a lazy, logy horse be expected to be a good carriage horse or a good saddler; neither should a large, draft horse be driven rapidly, even though he may have good life and endurance, for a cheaper horse can do such driving as well or better, while the heavy horse can do things that the cheaper horse can not do. In other words, judgment should be used in putting horses at the work they are fitted to perform. This is not only from the theory of getting the most profit from their work, but also that the greatest amount of pleasure can be obtained at the same time. Some assert that those things that are profitable are pleasant, but this is not necessarily true. Suppose that a man can make long drives in business, and, by so doing, makes trades or attends to a profitable business. If he does this at the expense of letting his horse go without dinner or letting him stand in the cold while he is attending to business in a warm room, there should not be pleasure, ever if there is profit in the transaction. A merciful man should be merciful to his beast and take such care of him that he can feel that he has not been a hard master. The farmer especially, and those who are with their animals much of the time, should live with them on the most friendly terms, and there should be a good understanding between them. In early life they need painstaking care and this care will be well repaid in after years in faithful service, and when old age comes to the faithful horse if he can not be kept in comfort for the good he has done he should be mercifully put out of the way, and not be allowed to be turned out to die, as is too often the case, and suffer until death shall come.

The teamster that is proud of his horses generally takes good care of them, and the farmer that is proud of his horses sees that they are well cared for, and in order to get the greatest enjoyment out of life the owner should try to secure animals that he will be proud of, and if they are well fitted for the work in hand they will be profitable, and thus profit and pleasure will go hand in hand, each reinforcing the other, and both combining to make life happy. Good stable, good, easy harness and proper attention will increase the profit and add greatly to the pleasure.

Cattle. For certainty as a business investment there is no doubt that cattle hold a front rank, and to be convinced that there can be pleasure as well as profit in their keeping, it is only necessary to visit a farm where there are good well-bred cattle. The pride with which the owner points out each prize winner, or the progeny of such, the statement of the prices received and the care given, all attest the interest of the owner, and pleasure is one of the strong inducements for continuing the business. The farmer should have pride in his herds, and will have if he has the right kind of stock, but the circumstances under which the owner is placed will determine, or should determine, the breed and the number. There should not be more than can be well taken care of, and the temptation is great to keep too many cattle for the feed and pasture, and if one yields there is reduction of profit and at the same time a lessening of the pleasure, for there can not be pleasure in cattle raising unless there is profit or thrift, and there should be both. There are so many excellent breeds that no trouble should be experienced in deciding on the kind to be kept. But it is not necessary to be an extensive breeder to enjoy pleasure or receive profit from the ownership of cattle. The man in town or city who has a nice milch cow and secures a good flow of milk may not derive much profit, but he has a pleasure that must be experienced to be fully appreciated. Cattle-raising is one of the main sorces of profit on Western farms, and it is only necessary to improve the breeding, erect better buildings and increase the facilities for handling to increase the profit and add to the pleasure of the business. At the recent Inter-National Stock Show there were many prize animals, and the prices paid made a good profit to the feeders, but was there not a satisfaction that was nearly as desirable as the money consideration? If we should single out an individual specimen and speak of the price, it might be said that the fancy price was not an index to the value, but when a carload of steers sold for fifteen and a half cents a pound there was not only profit but pleasure as well. The high prices of cattle for many months past, and the prospective high prices for years to come, should induce better breeding, better care and better feeding. This better care will increase the profit and add greatly to the pleasure of the industry. If you have not now a profit and add greatly to the pleasure of the industry. If you have not now a breed that you can be proud of, by all means change and get the breed that comes nearest to filling your ideal. A slower, and often a more profitable, change can be made by selecting male animals of the desired kind, and a few years will work wonders if the breeder has in his mind's eye the type of animal that he desires to produce, and will resolutely eliminate from his herd those animals that are not making a rapid approach to that ideal. If the cross is not too violent, rapid progress can be made in this way, but for those who are financially able to make a quicker change, cross-breeding, or more properly grading up, is not the right start, but the better way is to begin with full-blood animals of such individual excellence as will enable the owner to feel proud of his purchases. It is, and of right should be, a matter of pleasure to have animals of superior excellence, and in addition to being a matter of pleasure it is in the direction of best results from the financial or profitable side of the undertaking.

The sale of many carloads of cattle at from six to nine cents a pound has conclusively proven that the finished product receives a premium that should induce the stock raiser to put forth his best efforts to realize best results. Thus his profits will be increased, and the pleasure of the business will be no small share of the investment. It may be urged by some that if all should attempt to produce the best finished beef that the present high range of prices would not be maintained, but it must be remembered that only a few, comparatively, are up-to-date farmers and feeders, and that the great mass of those engaged in the business have neither the inclination nor the skill required to accomplish best results, but until the time shall come that more produce the best, those who do produce it will get a good premium for their efforts in the higher price received, assuring a good profit above that obtained by the ordinary breeder and feeder. The great ranges of the West can compete successfully in beef production of a certain class, and it must be remembered that they are now grading up and producing beef of better quality than some years ago, but they are without advantages for finishing their cattle, and so the farmers east of the great cattle ranches of the West will be enabled to fit their product so as to supply a demand that the range cattle do not meet. It is not the intention to here point out the minutia of the business, but merely to call attention to the opportunity and urge those who are engaged in stock raising and feeding to conduct their business in such a way that they will get the greatest profit and the most pleasure from it. There are plenty of object lessons to demonstrate the practicability of this plan, and as the ability of buyers seems to be on the increase, the future holds out bright prospects for those who desire to cater to the improved taste and increased ability of purchasers.

Sheep. Under favorable conditions, sheep will produce very satisfactory results, but under unfavorable conditions there is nothing on the farm that can produce more unsatisfactory results, not only as to the financial side, but from the side of personal feelings as well. A nice flock of sheep is not only an ornament to a farm, but they enable the farmer to have a neat farm, or rather conduce to that desired result. It takes but a few years with almost any foundation stock, by a proper selection of males, to secure any type desired, and the surroundings and conditions should suggest the type to be bred. The increasing demand for good mutton, however. should be taken into account, for those favorably situated can secure good results from this demand. The importance of beginning with a small flock is not properly appreciated by the average beginner. Only as experience justifies an increase should the temptation be indulged in for the ownership of a large flock. Even with the most experienced shepherd a few animals produce proportionately better results, and with the inexperienced flockmaster a large number of sheep invite disease and often render the business unprofitable and unsatisfactory. On the great plains of the West large flocks and the distinctively wool breeds are justly popular, but for the farmer small flocks and the middle wool or mutton breeds can be safely recommended. In the old world, flockmasters invariably have goats with the sheep, and since the Angora is becoming popular it might be well to profit by old-world experience and mix the flock. Goats are better scavengers than sheep, are healthy and vigorous, and, while the demand for these animals holds good, hold out fair prospects of being satisfactory stock for the farmer who is situated favorably for keeping them.

Swine. What! Pleasure in raising hogs? Yes, real pleasure in healthy, profitable hogs. Not in their companionship, of course, possibly not in their care, and yet a feeling of pleasure may be derived from the sight of vigorous, thrifty pigs and hogs, but the main pleasure is in the almost certain prospect of the returns from the care and investment. Many a farmer can trace his early prosperity to the hogs he has sold. They are mortgage-lifters. Many of the improvements on the farm would never have been made but for the profit from the swine that were sold. Many a young man and young woman owe their education to the profit from this part of the farming. Then why not pleasure in anticipation of so many good results? Some men are really more proud of their hogs than they are of their boys and girls and, possibly, the reason is that they have given their hogs a proportionately better chance. In fact, a nice lot of hogs deserve to make their owner proud, and there will be pride if the success of the undertaking is as good as could be wished, and yet be within the possibilities of good farm management. Get the breed best liked, and then raise such animals as will bring credit to the breed and the owner, and as this is easily within the power of the common farmer, nothing less should be tolerated. It should be remembered that ounces of prevention are worth pounds of cure in diseases of hogs. Under ordinary circumstances the best results are obtained from small herds, and experience seems to show that late, fall pigs are susceptible to disease and render swine raising problematical. A small number with best individual development gives best promise of profitable and pleasant results.

Poultry. It is probable that there are more amateur poultry raisers than there are of those who are in the business strictly as a business venture. Of course to those in the amateur class the idea of pleasure or the necessity of occupation aside from regular employment, figures as an inducement more than the hope of financial gain, but the fact remains that many are in the business strictly for the profits to be derived, while a still larger number raise poultry as a side issue, such, for instance, as farmers, who have the facilities and the inclination to raise chickens, turkeys or other poultry, or many kinds, to assist in eking out a living, or to add to the income derived from other sources. The vast amount of money spent each year for dressed poultry and eggs, the constant tendency to advanced prices, the improved breeds and greatly improved methods of handling poultry and poultry products, render the undertaking attractive, not only as a business, but as a favorable occupation for those who desire to add some outdoor labor to professional or clerical work. In fact, many men who have large and profitable business interests find time for, and pleasure in, raising poultry, and probably no other undertaking has more uniformly paid for judicious investment. With the improved facilities for keeping, shipping and marketing poultry products, the surplus can be carried over to a season of greater scarcity and thus, while the markets are kept more even, the low prices of former years are not encountered. The better methods of handling have increased the demand, and yet the stimulated supply has not overstocked markets to such an extent as to prove discouraging to producers. No equal amount of money from any other source of stock production so quickly and so freely circulates as that derived from sale of poultry and poultry products. Sales of cattle, horses, hogs and even for sheep and wool are generally in larger amounts, frequently go into the banks of the country and are held for large investments, while the money from poultry, generally in small amounts, enters at once into general circulation, meets immediate and often pressing necessities, and the vast number of people benefitted justly entitles this industry to a leading place in the estimation of the general public.

The great number of new and popular breeds enables the owner to have his fancy gratified. If he wants pet stock there are breeds that will meet his desire; should he want eggs, there are breeds that will meet the requirements; while should he want meat there are breeds that will fill the bill and make satisfactory returns for the feed and care given. Those on a farm, where there is plenty of feed and good range, can raise poultry with limited success, with little care or expense, or on a large scale with proper management, but to those with small land holdings or where the range is restricted, eternal vigilance is the price of success if the business is to be extensively carried on. It is more a matter of close attention and painstaking care, however, than of hard work or extensive outlay of time or money.

Poultry raising offers special inducements to those who are employed regularly, but have a little time they can call their own each day. Many ministers and other professional men find this a good means of adding to a scanty income, while many women find diversion and profitable employment for leisure time in this industry. There are hundreds of girls and women in department stores and doing other clerical work, often working long hours and wearing themselves out at small pay, that could make more, be more independent and greatly add to their prospects by a change to poultry raising, and at the same time get more real pleasure than in the long hours of office work or the longer hours of work in stores. The poultry business can be conducted in city, town, village or country, requires but little capital, and as experience and financial conditions warrant can be increased to almost any extent desired. It offers the advantage of being able to commence this business and arriving at considerable progress or advancement before leaving other employments—can be extended at any time at the will of the person most interested, and to the expert there are great possibilities, especially after reputation is established and the business is well advertised.

The farmer may not desire to engage in this as a business, or to have much, if anything, to do with it, but the good wife may be inclined that way, and if so, should have assistance and hearty cooperation. A son or a daughter may be inclined to do something in this line, and if so there should be given an opportunity to develop whatever of adaptability he or she may have in that direction. There is plenty of room along the lines suggested, and encouragement should be given to those who show an adaptability for such work. There is little danger that the business will be overdone, and even if depression should come to the business as a whole, those who are experts will succeed and when reaction comes, as come it will, those who are easily discouraged will have left the field, and those who persevere will be in command of the markets and control the situation.

Pet Stock. It was in my mind to speak of pet stock at some length, but the magnitude of the subject, as a whole, forbids extensive discussion. In the raising of pet stock pleasure or inclination naturally takes first rank, and if properly managed considerable profit may also be derived from the sale of such stock. It requires good judgment, for a person is liable to become too enthusiastic in breeding pet stock and continue so long or engage so extensively in the business as to endure loss. The Belgian hare craze might be cited to illustrate this thought, and yet many have done well with Belgian hares; in fact, one gentleman that I know did remarkably well the past season in handling them. There is a possibility of the supply exceeding the demand, especially at high prices, and yet there are those in the business that will do well, for discreet, business sagacity will receive its reward. There are many lines of pet stock that promise good returns, and some of these lines can be carried on with the poultry or other business.

All stock should be pet stock in one sense, especially if there are not a great number of animals. The horses, the cattle, the hogs, the sheep, and indeed every animal should come at the owner's call, and there should be a good understanding between them. They should know that he is their friend, and he should so treat his animals as to be worthy of their friendship. His financial interests demand this, his peace of mind should prompt it, and every consideration should impress him with the necessity of giving good shelter, good feed and considerate care. In fact, best financial results can not be attained in any other way, and certainly the pleasure of stock raising depends almost entirely on the kindly care given, and the comfort of the stock. A passionate man should curb his temper and treat poor dumb brutes with kindness, and if he can not do this he should sell out, abandon the business and engage in some other calling.

The President: Gentlemen, I desire to thank Mr. Van Houten on the part of this meeting for his excellent paper. I presume those of you who have listened to it are as deeply thankful. Now we have on the program for our next address Col. J. F. Berry, of Chicago, who will speak upon the subject "Market Horses of the Twentieth Century with Prospect of Present and Future Prices; Automobiles and Motor Power, as Affecting the Horse Industry." I now have the pleasure of presenting Col. Berry to you.

Mr. President, Gentlemen of the State Board of Agriculture and Breeders of Ohio:

I feel that a great honor has been conferred upon me in calling me from Chicago to come here and speak to such a highly respectable audience, composed of citizens of the State of Ohio.

The privilege of participating in the discussion of the American horse industry, which is the pinnacle of all agricultural pursuits, is one appreciated by me, and the subject assigned to me by your worthy president is one that greatly interests me, and one that I have made the study of a life that has been full of experience. It affords me great pleasure to have the opportunity of presenting this topic of the market horse for the twentieth century, and the classes and qualities required to fill the demand, present prices and the prospect of future prices.

The market horse of the twentieth century will be a far different horse from that of the past century. He will be a horse of more perfect conformation, larger size, more action and of better quality in every respect; in fact, I might say more horse to the square inch, higher class and higher finish combined with style and beauty.

In order to avoid any and all mistakes and failures in the future production of horses for the twentieth century, let us well consider the past, that we may profit by ancient failures, mistakes and experiences to the extent that the future production of horses may be reduced to a well-defined principle, and that we may acquire a thorough knowledge of that principle, so that every effort will be in the right direction, and will result in a grand success. The failures of the past are yet fresh in our minds, and, although the horse industry has been flourishing for the last two years, we well remember the great calamities in this industry from 1893 to 1897; the reduction in values, the ruinous prices the common and lower grades sold for, paralyzed the industry and caused many failures, and the breeding of horses for a few years was a thing of the past.

Why was all this? It was an unusual combination of circumstances against the horse industry; the craze of the bicycle, and the many sensational articles published had had their effect for the time being. But the bicycle craze is past, 90 percent of them have gone out of existence, and never is the bicycle spoken of at the present day as taking the place of the horse.

Again, it was said there was an overproduction. This was perhaps true of the kind produced, without any regard to class or breed or the market's demands. Fully 80 percent of the horses on hand during those times were not of the salable or market classes, as no attention had ever been paid to the raising of horses strictly of their own class, with a view to the demand of the market, but promiscuous breeding and raising of whatever came to hand, without any stated object in view, was the rule. Thus an innumerable number of misfits and nondescripts were produced, with only a very small percentage of the whole number that would ever make market horses, or that would fill the requirements of either one of the five different classes of market horses. Here was where the whole trouble came in. The percentage of market horses was so small and the percentage of nondescripts and misfits was so large, with the panic of 1893 to 1897 upon us, how could we expect anything but ruinously low prices for the common and low grades of stock on hand at that time?

Notwithstanding the panic, the craze of the bicycle, and the many sensational articles published about the displacement of the horse by electricity and motor power, the good horses and all that came under the head of the market classes, sold at reasonable prices all through the panic. Everything that came under the head of export classes sold readily, and at fair prices, while the next grade lower were horses of no class, and they embraced a very large percentage of all the horses on hand, and they sold ruinously low, or from moderate prices all the way down to nothing. And this is where the mistake was made. They never should have been produced. The best comparison that I can make in regard to producing this kind of horses is to say that it is the same as a man of this day undertaking to produce beef with the dairy breeds of cattle, the Jerseys and the Holsteins, and the man that would undertake to do that would be considered a lunatic, and he certainly would make a failure.

Had the breeding of horses for the last half century been reduced to a true system, with the object of producing a market horse, and every horse strictly of his own class and of his own type, with an eye to all of the qualities required of each class to constitute an up-to-date market horse, including the road, carriage and coach horse, the omnibus, express and draft horses, we would have had a stock of horses in this country when the panic came on in 1893 that, as fast as each year's crop of horses were matured, fed and fitted for the market, would have sold to the export trade with but very little if any loss to the breeders, for we had an export demand that would have taken all of them, and there never has been a time since 1893 when all horses of the above-mentioned classes were fed and ready for market that they did not sell readily as soon as offered in our markets. The demand has always been more than the supply for the export classes, and the American trade demands exactly the same class of horse as the export trade, except that the American markets will take horses with a little less quality or a little lower grade, but the price is always in keeping with the horse.

The trouble for all those years in the Chicago markets has been to get enough horses that were strictly horses of their own classes and qualities for the export trade, for we have had a market demand that would have taken any amount of those, but while we have been short of the market classes we have had an oversupply of nondescripts, misfits, rough, plain and all the lower grades, and the markets have been crowded with this class, that never should have been produced, and the results to the producers have shown them the folly of the investment.

All the failures of the past have been caused by the mismanagement of the business, and by the poor and idiotic system that the horse industry has been conducted with. While the wheel, electricity and motor power and the panics of 1893 and 1896 have had something to do with the depression of the horse industry, still the principal cause of the distress and failures was the lack of proper system of conducting the breeding and raising of horses for the markets, or as you might say the want of any system whatever. The breeding of horses went on in a haphazard way, and no one thought or even spoke of trying to produce any particular class of horses, and class and type were not spoken of or taken into consideration at all, until within the last seven years. When the export demand commenced, about 1893, less than one thousand horses were exported for the first year, but the export trade has made a gradual gain, every successive year taking more, until the past year's export reached the enormous figure of seventy-five thousand horses.

The horsemen of this country have found they can sell nothing for export except a strictly class horse, and that every horse must possess all of the qualities that are required of his own class, and every class must be a distinct type and class of its own, and all horses must be perfectly sound. Here is the greatest and most instructive object lesson that the American horseman ever received, and one which has revolutionized the whole breeding system, and proved to be the most valuable kind of education in the breeding problem. The following are known as the export classes and also are the most salable in all the American markets: Class No. 1, road, carriage and coach horses; Class No. 2, the cab horse; Class No. 3, the omnibus and express horse; Class No. 4, the heavy draft horse, and Class No. 5, the American trotter, or road horse.

While the experience of breeders, farmers and horsemen of the past has been very expensive and caused many failures, it has been an instructive lesson, and far from being without its benefits. They fully realize that the old system of breeding and raising horses will not do, that the go-as-you-please way of breeding, without paying any attention to the different classes that the market demands, means failure. The liner studies his model, and every stroke of his brush is an effort to reproduce the original on canvas, and so it should be with the breeder of the market horse for the twentieth century; he should have an ideal which he aims to produce; this model he will find in the market horse which fills the public eye and wants and is in urgent demand. The breeder should visit the open market and learn the type of animal that sells for the highest price, and after deciding what kind of a horse to breed, strive by undaunted perseverance and methodical selection to produce a perfect horse of that particular class. The progress of civilization has made the specialist a necessity of society; the luxuries of the rich and the necessities of the poor are provided largely by him; his work is honorable, and he adorns life and dignifies civilization. The field of science is too comprehensive and life too short for one to become an expert in all branches of knowledge. The breeder should not, therefore, attempt to conduct an establishment comprising the whole range of horse breeding, but he should concentrate his capital and energy in producing the highest standard type of one special class. He should consult his finances and natural inclination when choosing the kind of horse he will breed. He must be inspired by an innate love of his art and possess an intuitive perception of the model animal he is trying to breed, or he will not achieve success. He must be an enthusiastic student of the animal kingdom, and have a humane consideration for the comforts and natural wants of the young stock in his charge, or it will never develop into choice horses which top the market.

The market horse of the twentieth century will be a far superior horse to that of the past. He will be elegant in appearance, fine in carriage, of high form, high finish and superior action, with all of the size, substance and qualities required of each individual of his class. The horse industry of the twentieth century will be one of the most valuable, and show greater returns than any other class of domestic animal industry.

Horses are high at the present day and are getting scarce, and will increase in both price and demand for many years to come. The extreme prices that horses have been selling for for the past three years have demonstrated fully that the American people still have a love for that noble animal. To show you the increasing prices horses have been and are selling for, I will quote a few sales that I witnessed while visiting the New York Horse Show.

Among the many teams that I saw sold at the American Horse Exchange were several carriage teams selling all the way from one thousand dollars to three thousand five hundred dollars per team. One fine pair of cobs, fifteen and a half hands tall, high steppers, six years old, sold for twelve hundred dollars. One team of carriage horses sold for two thousand dollars. One very fine team, sixteen hands high, weighing eleven hundred and fifty pounds, sold for three thousand. A fine road team, fifteen and three-fourths hands high, weighing twenty-one hundred pounds, sold for three thousand five hundred dollars. I also saw a four-in-hand coach team sold by Mr. Bates to a private gentleman for ten thousand dollars. This four-in-hand team was exhibited at the horse show, and took only second prize, as it was shown in the most grand array of four-in-hand teams that I have ever seen, nine teams contesting for the same prize. C. W. Williams, of Galesburg, Ill., sold the following week at a combination sale at Madison Square Garden, ninety-five head of trotting-bred colts, nearly all of his own raising, mostly two and three-year-olds, at an average of three hundred and ninety-five dollars per head for the entire lot, ranging in price from one hundred dollars to six thousand dollars per head. M. A. Tichenor & Co. exhibited twenty-two head of trotting-bred carriage horses (teams) at the Chicago Horse Show, and after exhibiting then, shipped them to New York, and sold them at Madison Square Garden at an average of nine hundred and twenty-five dollars per head. One team, "Chancellor" and "Challenger," brought four thousand six hundred. This firm also sold a trotting-bred team to Mr. Roy, of Paris, France, for five thousand dollars, and made another sale at the same time of a bay gelding, sixteen hands high, six years old, trotting bred, a high actor, reported to have been purchased for the millionaire horseman, Walter Winnans, of London, England, for five thousand dollars.

The export trade of coach and carriage horses is of large volume and annually increasing. There is no end to the demand or limit to the price, when the horses are bred, raised and fitted for the market, and of that high quality that will be required of the market horse of the twentieth century.

As I was looking over my list of prices that high-class horses have sold for in past years I find that over forty horses have sold at prices ranging from twenty-two to one hundred and twenty-five thousand dollars per head. "Directum," with a record of 2:05 1-4, sold to an Eastern man, in 1899, for twenty thousand dollars. Last year a Michigan colt, four years old, sold to J. Malcolm Forbes, of Boston, for twenty thousand dollars. And so I might go on quoting prices that good horses have sold for within the last few years enough to fill a book, but time and space forbids. Enough has been said to show that the horse is still in demand, and that the demand is increasing with each successive year.

The horse is still among those fittest to survive. His position in the commercial world is still indispensable, and was never more emphasized than in the expanding industries of the closing years of the nineteenth century. The pessimists who have predicted the advent of the horseless age are condemned as false prophets. The superior utility of the horse was never more recognized, and his usefulness in the arts of peace and the science of war was never more conspicuous.

Inventive genius may evolve substitutes for the equine monarch, but mechanical inventions pale before his general utility. It has been a year of signal triumph for him. The automobile promoters and manufacturers were out with announcement in 1899 that the electrical vehicle would supplant the horse in all of the metropolitan cities in twelve months; the breweries, the great department stores and the immense transportation companies would eliminate the horse and adopt the automobile carriage. The twelvemonth has expired—where is the revolution in economical motors that was to have taken place? The leading industries continue to use the horse; as an economic experiment, a few of the great department stores and commercial corporations tested the utility and economy of the automobile carriage, and in no instance did the new invention prove to be a pronounced success. A few of the great department stores of Chicago adopted the horseless carriage for delivery service, but the automobiles failed to give satisfaction. The mechanism is too complicated and intricate for durability or unskilled manipulation. It requires an expert electrician to operate one of the vehicles, and the machinery is constantly getting out of repair.

Automobiles wherever they have been tested in this country have proven very unsatisfactory and are undoubtedly on the decline. I conversed with many parties owning and using them while in New York, and all voiced the same sentiment, that they were not altogether satisfactory. Many said they would keep them for rainy weather and night work, in order to save their fine horses and carriages, but for pleasure driving in the parks and boulevards they should never abandon the horse, as he is a source of pleasure and joy to mankind forever.

A series of automobile races, conducted at Washington Park this season, drew slim audiences, while the classic meeting of speed horses drew an audience of over fifty thousand horse fanciers of aristocratic lineage. The horse show at the Coliseum in Chicago last autumn was a society event and was patronized by the elite of the city. In New York, Philadelphia, Boston, Denver, St. Louis and all the metropolitan cities of the United States, horse exhibitions have become conspicuous events. Take a stroll through the parks and boulevards of Chicago any pleasant afternoon and you will witness a panorama of elegant vehicles, drawn by magnificent horses; the costly turnouts, with their superb appointments form a spectacular array that draws thousands to the parks to view the dazzling pageant, and the fancier is at once impressed with the increasing number of vehicles, the elegance of the appointments and the magnificence of the horses, some of the fancy teams being worth from one to six thousand dollars.

It has been said that electricity and motor power has displaced the street car horse. This is true, but while the street car horse has been displaced, he has found many other kinds of work waiting for him, and where one horse has been displaced by the new system of electrical motor power a demand has been created for several more. Our street cars run far into the suburbs, thus enabling the people to build up comfortable homes in the midst of broad acres. These people come to the cities to purchase goods and the goods are delivered with horses, thus creating a demand for vast numbers of these useful animals. Where one horse a decade ago was sold for delivery purposes, there are now twenty-five sold.

Time, in its evolution, has made many changes, and has recently brought about an increasing demand for that most useful of all animals, the horse.

The President: Gentlemen, I would like very much indeed to give you the privilege of asking Col. Berry question after question, but I must say that we have a program that we would like to carry out. The next address will be by Judge Henry M. Huggins, of Hillsboro, Ohio, on the subject "Present Conditions and Probable Future of Tenant Farming," and I now take pleasure in presenting Judge Huggins to you.

The census of 1900 will probably show that the number of those who farm land belonging to others is largely increasing. I venture this prediction, partly from what I see going on in the county where I live. There the money made in manufactures, trade or banking is being invested largely in farms bought from those who tilled as well as owned them. These farms are now to be permanent investments for capital, and are to be tilled by tenants. Within the last year three of the best farms in Highland county have been bought by a wealthy coal mine owner as a safe place in which to put surplus money.

There are, perhaps, several causes for this condition. The principal one, it seems to me, is the tremendous increase in capital, resulting in a low and constantly lowering interest rate and greater difficulty in finding secure places for money where it will bring an income. The change in current interest rates in the last thirty years, and the consequent decrease in the income producing power of money, is, perhaps, hardly realized. I moved from a farm to Hillsboro, Ohio, in 1872. At that time the interest rate there, in banks and from money lenders, was ten percent in advance; now it is hardly six, not in advance. If some lenders can put their money where they can dodge a tax upon it they are content with five or even four percent. If the difference between compound interest at ten percent in advance and at six, five, or four is computed the change is shown in a very striking way.

The increase in the number of tenant farmers and the consequent decrease in the number of farm owners is something which is usually, when it is considered, greatly deplored. It seems to me it is justly to be deplored. I believe it is better, vastly better, for the tiller of the soil to own it. I believe it is better, even if the general volume of wealth is thereby not so great. But the condition exists. It seems likely to continue and to become more extensive. Is it to be permanent? If to be permanent, what are to be its effects and consequences upon the future of our country? Are we to have a distinct landlord class like England, and every other of the old civilized countries, save perhaps one? These are, it would seem, grave, important and interesting questions, as well to the statesman, the philanthropist and the economist as to the farmer. Whatever the future may have in store, for one I have no fears, so long as the political integrity of the American farmer remains substantially intact. If the time shall come when political corruption shall be so far infused among the great body of American farmers that the ballots they cast will represent, not their honest convictions, but their purchased or corruptly influenced political action, we may tremble for the future of our country.

But I am to consider the matter of farm tenancy in its practical relations. We have it. We are likely to have more of it. What are its evils? How can these be made less? What are its merits, if it has any? So far as I have been able to observe the actual workings of farming by tenants, I have been unable to see any good results as a general thing. There have been two plans. One is known as cash rent. In this the tenant pays a certain sum of money for the use of the land with more or less privileges and restrictions upon its use. The other is known as grain rent; in this the tenant gives a certain share of the grain, and usually of the hay, for the use of the land, with more or less privileges in and restrictions upon its use, the owner retaining all or most of the pasture. Under farming by these plans the farms have nearly always gone down in fertility, in repairs, and, as a consequence, in money value. The tenants usually make nothing but a poor living. The land owners nearly always complain that they make little or nothing, and that they can not get good tenants. The tenants nearly always grumble at the land owners. Changes in tenancy are frequent. Nobody concerned is satisfied.

Some years ago it fell to my lot to undertake the management of some farm land. The only way by which I could do this was by some kind of tenancy. I was thus brought face to face with the tenant problem, and induced to consider why it was that the tenant relation was usually so unsatisfactory and so unprofitable to both parties. It appeared to me, upon such consideration, that there were several reasons.

One reason was that until the last fifteen or twenty years the good farmers who were tenants were being all the time sifted out of the tenant class. Such men got land of their own, either by going West or by thrift and self-denial, buying homes where they were. That condition has passed, never to return. The good farming lands of the West are taken. The farm lands of the East and middle West, while cheap, are so because farm products have been cheap. If such products are higher the land will be higher. In either case it is and will be the very exceptional tenant who can buy land. But the influence of the condition remains, perhaps, depressing still the efficiency of the body of farm tenantry. Another reason has been, I think, that the owners of rented farms did not, as a rule, intend to hold them. This, as I have said, seems now to be changing. But until recently the rented farm was usually one that the owner had taken in trade, or in foreclosure, and did not intend to keep, or one belonging to an estate, or the title in some situation where change of ownership was likely. This led to short terms, failure to keep up repairs, and less interest by both owner and tenant in the farm. But the principal reason seemed to me to be that under both cash rent and grain rent tenancies the interest of the tenant and the owner are opposed; not so much in the latter as in the former, but yet in both.

In cash rent what I have said is, I think, evident. It is the interest of the tenant to get as much as he possibly can out of the farm, and to do nothing for it he can avoid. It is, of course, his interest to raise as good crops as he can, provided the expense is not too great, but as he has no interest in the land beyond the crop he calculates very carefully what expense will pay *him*, and stops there. He has no motive to keep up repairs, and does not. The same holds good, though not to the same degree, perhaps, in grain rent. In either case the parties deal at arms' length, without, or with little, community of interest.

It occurred to me that if some scheme of tenancy were adopted in which the interests of the parties would run together instead of apart, that some, in fact, many, of the evils of tenant farming would be avoided, and upon some reflection I thought the plan of a partnership would, better than any other, reach the end desired. Partners do not deal with each other at arms' length. In fact, as in law, each is a trustee for the other. Assuming honesty, what is the interest of one is the interest of both. I therefore determined upon partnership tenancy. I furnish the land; the tenants furnish the implements and labor. We pay expenses out of the farm earnings and share the profits of all farm products; all stock except work horses and milch cows are owned jointly; contracts are made for one year, but with a stipulation that they are to continue from year to year while mutually satisfactory; either party desiring to end the contract is to give three months' notice before the end of the year. There are details too lengthy to be given here, and which, in such contracts, would vary according to circumstances, but these are the principal features.

After some years' experience, I have found this plan of tenant farming work fairly well. I have never changed a tenant and have no present intention of doing so; I have had the luck, or something, to get good men; they have done well, and do not want to leave me. On my side, the lands have been rapidly improved; the stock has been well cared for; the interest of the tenants was to take care of theirs, and they could not do that without taking care of mine. I have received, unless my books deceive me, from four to six percent net per annum on money invested, besides some permanent improvements charged to expense accounts. What I have said perhaps indicates my idea of the probable future of tenant farming.

It seems to me that the present tendency to buy farm lands as an investment will increase rather than diminish. The reasons for such investments I have given; that is, the low interest rate and the scarcity of safe income-producing places for money will continue and become more persuasive. In addition, I think that in the comparatively near future there will be an uplift in the prices of farm products, giving farm lands greater income-producing power with the result that they will be more attractive to capital.

By 1925 there will probably be a hundred and ten million people in the United States, exclusive of Alaska and our islands of the seas. That increase in population will consume as much farm food products as we now export. But in 1925 the outside world will need our food exports even more than now. If I am right in these surmises, prices of farm products must rise in value. If what the farm has to sell is higher the farm will be worth more.

Assuming that from this time forward an increasing proportion of farm lands will be held by owners who will have them worked by tenantry, what will be the result for agriculture and agriculturists? As I have said, I am one of those who lament the fact that the farms are not, as once they nearly all were, owned and to be owned by men who till them. The world has never seen greater men and women than our farms have produced. If they were deficient in the conventionalities of polite society, they were not deficient in physical vigor, in mental power, or in moral worth, and it is these that build, develop and preserve commonwealths. But nearly everything has some merit or advantage to compensate for its demerits and disadvantages. Tenant farming is not an exception. That it is consistent with a high degree of excellence in husbandry is shown by the agriculture of England, mainly carried on by tenants. That agriculture is conceded to be, I believe, the best in the world.

Men who can acquire and conservatively manage capital are men of good business judgment and methods; if they make farm investments they will manage them with the same skill and energy they exhibit in other matters. One of the greatest hindrances to full success in the farming of America has been the want of capital; the capitalist can furnish his farm with stock and implements that will secure best results, and it will be his interest to do so; or, if he furnishes only the farm, the tenant, having nothing in the land, is left free to put his capital into such stock, implements and methods as will produce the best return. The capitalist, seeing the evils of short terms and opposing interests between landowner and tenants, will devise some system that will avoid, or, at least minimize, them. And thus farm tenancy may result in a highly developed and prosperous agriculture.

But I do not believe that to be a tenant is the final condition of the farmer. The time may be long, the way may be filled with troubles, many "hills difficulty" may have to be climbed, but the time will pass, the way will be traversed, the hills will be surmounted, and the tiller of the soil will have his full share of the better time sometime coming. Whether we have faith to stand with those who believe that the good time is to come through the gentle and sublime teachings of Him who spake as "never man spake," or whether we hold with those who believe that the good time is to come through the strain and stress of competition and the survival of the fittest, the end is the same—a higher and better life for all. And if we look to the past to forecast the future we learn the same lesson. From the time "Piers Plowman" was written until now the condition of the farmer has been, on the whole, getting better;—slowly, it may be, but better. The farmer may be one of the last to learn, but he will learn, he is now learning, the power of organization. He will learn to be just to others while protecting himself. And he will finally, with all the great army of worthy toilers, whether of hand or brain, "sit every man under his vine and under his fig tree; and none shall make them afraid."

The President: Gentlemen, I am sure that Judge Huggins' paper is one from which great profit can be derived if we follow out the excellent advice that he has given us. The next address on the program was to be delivered by Col. J. H. Brigham, Assistant Secretary of the Department of Agriculture at Washington. Col. Brigham has asked to be excused, with the assurance that his address will be printed in the report of this meeting and will be found in the regular annual report. (The following is the address of Col. Brigham.)

THE RELATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE TO STATE DEPARTMENTS OF AGRICULTURE.

There is probably no other country on the face of the globe where, in the aggregate, so much money and so many persons are employed in the service of agriculture as in the United States. Beginning with the Department of Agriculture, where some three thousand persons are employed in almost every line of agricultural investigation under the direction of chiefs, many of whom are recognized as the leaders in this country in their particular line of agricultural science, we have for this department expenditures aggregating about three million two hundred and fifty thousand dollars per annum, to say nothing of the half million spent for printing and probably a fourth of a million expenditure borne by the Post Office Department in the transmission through the mails of the millions of copies of its publications. This department, then, may be said to represent the principal effort made by the national government on behalf of agriculture, but we have besides, on the part of the national government, further contributions of some two millions of dollars, distributed through the state agricultural colleges and experiment stations. Statistics of the state agricultural experiment stations show a total annual income for 1899 of one million one hundred and forty-three thousand dollars, of which seven hundred and twenty thousand dollars was the share received from the national government. These stations employed six hundred and seventy-eight persons in the work of administration and scientific inquiry.

The colleges were endowed originally under the Morrill and Grant Act (1862), with public lands, the proceeds of which were estimated in 1898 at over ten million dollars, and the value of land still unsold at nearly four million dollars. In addition to this enormous endowment they receive yearly from the national government an allowance of $25,000 each, while from other sources, state appropriations, interest on land grants and other funds, these institutions were credited in the year mentioned—1898—with a total income of more than six million dollars. Including all departments the persons composing the faculties of these colleges numbered two thousand six hundred and eleven, of which a considerable number were engaged exclusively in teaching in the agricultural courses, while the great majority devoted a large part of their time to students of agriculture.

In the various states of the Union agriculture is represented by certain state officials. In one state, Pennsylvania, we have a secretary of agriculture; in sixteen other states there are commissioners of agriculture; in Idaho the state engineer represents the agricultural interests; twenty-four states have boards of agriculture, whose secretaries are the principal executive officers in agricultural matters. In addition to these, twelve states have state agricultural societies, and forty-three states have special officials in charge of farmers' institutes. So much for what may be termed the official representation of agriculture in the national and state governments.

These several forces, then, namely, the United States Department of Agriculture, the experiment stations, the agricultural colleges, and the commissioners of agriculture and the state boards are governmental representatives of the agricultural interests in the United States. Through these several channels the efforts of five or six thousand trained men, either administrative officers, or in still greater number, scientists and experts in the several lines of agricultural inquiry, are directed to the service of the farmer. These forces, moreover, represent in the aggregate a total annual expenditure of not less than seven or eight millions of dollars.

These few figures will certainly justify the statement made above as to the number of persons and the amount of money devoted to the service of the agricultural interests in this country as compared with any other country throughout the world, but gratifying as this showing is, it is worth while to inquire whether as much is being accomplished for agriculture by the forces engaged as this brief enumeration of them would imply.

A little investigation of the subject will, unfortunately, convince us very quickly that the results, great as they are, do not fully meet reasonable anticipations, and the reason therefor is as obvious as the conclusion, viz., the lack of a systematic, thorough, cooperation of these several forces in the work in which they are engaged. It is true that legislation has greatly encouraged cooperation between the experiment stations and the agricultural department, and that through the operations of the admirable organization known as the Association of Agricultural Colleges and Experiment Stations, sympathy and cooperation between the workers in the department and the teachers and investigators in the colleges and stations have been stimulated and encouraged, but that such cooperation should be far more extended and intimate than it is, no one familiar with the conditions will for a moment doubt. In the meantime we can only rejoice that the need of it at least is fully recognized, and that, too, among those most actively engaged on behalf of agricultural development, but even as much as this can not be said as to the relations between the department and the agricultural officials of the state governments. It is a remarkable fact that in many cases friendly relations seem to be more easily established between the Department of Agriculture and the agricultural officials of foreign governments than with the agricultural representatives of many of o r state governments. It is difficult to say, and it is probably not necessary to discuss, who is to blame for this state of things; the main thing to be noted is that it exists; the main argument to present is that it should not last.

It may readily be conceded that in many states the commissioners of agriculture and the state boards are doing grand work for the agricultural development of their own states, but this does not diminish the force of the argument presented; on the contrary, it rather emphasizes it. Were the relations between the agricultural representatives of the state governments on the one hand, and of the national government on the other, to be as intimate and cordial as they might and should be, working as they are, with the same object in view, it would be manifestly easy for both to be reciprocally useful. The forces of the Department of Agriculture, its extensive means for carrying on scientific investigations, its opportunities for acquiring information in relation to what may be termed agricultural economics, both in our own country and abroad, should all be available, and, indeed, are available to the agricultural departments of the state governments if the latter choose to take advantage of them.

One of the things to be greatly regretted is the infrequency of personal visits to the department at Washington of the agricultural officials of the state governments. It is a remarkable fact that representatives of the agricultural departments of at least a dozen foreign countries have been in Washington investigating the methods and workings of the Department of Agriculture almost every year during the past decade, while it is really doubtful whether during the entire period of ten years a score of representatives of the governments of our forty-five states have visited the capital for a like purpose. This criticism, if it be one, does not apply to Ohio.

On the other hand, representatives of the department are frequently sent to various parts of the country, but then almost always on some special mission, with no time to spare save for its fulfillment, and unable, therefore, to do anything to cultivate closer, more friendly relations with state officials. The effect of a closer intercourse between our own and the state departments would unquestionably have the twofold result of enabling our own workers and investigators to learn what are the needs of agriculture in the various sections of the country, and thus to so shape their work as to meet the wants of the greatest number, while at the same time it would tend to spread throughout the country and through authoritative channels a knowledge of what the department is doing.

Moreover, through such cordial sympathy and intimate relations with the state departments, the national department would be enabled to establish cooperation with the several voluntary state organizations devoted to the agricultural interests in some of its many phases.

The national organizations can and do, though not nearly as much as they might, maintain relations with the Department of Agriculture and avail themselves of its work and its accumulation of information, but with the majority of the state organizations the relations of the department are extremely slender, and we even find it difficult to induce them to keep the department informed of the bare data necessary to supply the agricultural directory, which forms a part of the appendix of the Department Yearbook. It is to be presumed that their relations with the state officials are far more intimate and thus through the latter it would surely be possible for the Department of Agriculture to reach them.

Speaking of the rare presence in Washington of state officials for the purpose of studying the department and its work, I may state as an interesting fact that some of the foreign governments maintain permanently at the capital, agricultural and forestry experts, who thoroughly study and avail themselves of the work and investigations of the Department of Agriculture.

There are then at least two very obvious ways in which the relations and mutual service of the national and state workers for agriculture may be greatly extended and encouraged; namely, more frequent visits to the department by state officials and more extensive travel and visiting of state officials by representatives of the department—in other words, a more frequent intercourse resulting in a more intimate acquaintance.

At present only the first of these methods is available. The second would entail an increase in the department force and an increase of traveling expenses, which can only be supplied through the liberality of Congress. It seems probable, however, that even under existing circumstances the steps of state officials charged with supervision of agricultural interests could be more frequently directed to the national capital, where they could meet the Secretary of Agriculture and discuss with him and the subordinate officers of the department the needs of agriculture in their several sections, and become more familiar with the work of the department and its methods. The value of such visits would be great to the department workers who need and desire to be kept in touch with the country at large, and I speak for them as well as for the secretary and myself when I proclaim a warm welcome for all those state officials who will favor the department with their presence, but I want to warn them that the department is a pretty big institution and that its worth can not be studied in a day. It might perhaps be a good plan if officials could arrange some time to visit the department in a body, but whether they come individually or collectively, the same welcome will be extended to them, and they will find the department officers eager to receive their practical suggestions and to enlighten them as to the scope and character of the department work.

Without taking time to consider in detail the many good results which would necessarily follow closer and more intimate relations between this department of the national government and the state officers devoted to agriculture, I may certainly mention one which is preeminently obvious. Among the most useful media for the diffusion of valuable information to the practical farmer and for the intelligent discussion of matters of special interest to his calling, are the farmers' institutes. As already stated, no less than forty-three states have regular officials charged with the promotion and extension of these institutes. One of these states, Wisconsin, recently reported the number of institutes held annually in the state at one hundred and twenty with an aggregate attendance of over fifty thousand persons. In Massachusetts a total of eleven thousand farmers attended one hundred and twenty-five institutes. In Virginia sixty institutes were held with an attendance of fourteen thousand. Minnesota reports fifty institutes with an attendance at each of from three hundred to one thousand. In Pennsylvania three hundred institutes were held; attendance, fifty thousand. In Ohio, two hundred and fifty institutes; attendance, ninety thousand. In Indiana, one hundred; in New York, three hundred; in Nebraska, sixty institutes are reported, and so on throughout the whole roll of states where farmers' institutes have been established. Now, it is the experience of all the representatives of the department who have taken part in these interesting gatherings that no subject has commanded more attention from these audiences of intelligent farmers than the work of the Department of Agriculture. Here, then, we have obviously a most important medium for reciprocal service if the managers of these institutes care to avail themselves of it by cultivating closer relations with the department. By such means the work of the department itself may be extended and improved and the great masses of farmers in the several states be benefited by being put in the way of availing themselves of the department's services.

The President: The next address on the program will be delivered by Professor Thomas F. Hunt, Dean of the College of Agriculture and Domestic Science of the Ohio University.

Professor Hunt: Owing to the lateness of the hour I should be glad to have the address read by title only and submit the manuscript to the meeting.

Mr. Hine: I move you, Mr. President, that Professor Hunt give a short talk, a synopsis of his paper.

Motion prevailed unanimously.

Thereupon Professor Hunt read his paper as follows:

THE OUTLOOK FOR THE LIVE STOCK INDUSTRY IN OHIO.

During the first half of this century, Ohio and Kentucky, but especially Ohio, was the center of the live stock trade in America. Let us pause here and turn back the pages of history to July 13, 1787, when the Congress of Confederation, assembled in New York City, enacted the famous ordinance of the Northwest Territory. Just fifteen days after this memorable ordinance was enacted, Congress passed an act, which disposed of five million acres of land in Ohio at about ten cents per acre. One and one-half million acres of this land went to the Ohio Company, which the next year established the first permanent settlement in Ohio at the mouth of the Muskingum river. Three and one-half million acres were said to have been "for private speculation in which many of the principal characters of America were concerned," and out of which grew the famous Scioto Company, called by McMaster, the first great land job of the Republic.

The same Congress granted to John Cleve Symmes two million acres between the Little and Great Miamis. By every art known to the land agent, the tide of immigration into the Ohio Valley was swelled into a torrent. The canvas-covered wagon with the sign 'To Marietta on the Ohio" carried so much of the fresh, young, able blood of the East as to create alarm. One authority estimates that ten thousand immigrants went by Marietta in 1788. In the East anti-emigration pamphlets were issued. One of these represented a stout, ruddy, robust, well-dressed man on a fat, sleek horse, with the label, "I am going to Ohio," meeting a pale and ghastly skeleton of a man, scarcely half dressed, on a wreck of what was once a horse, with a label, "I have been to Ohio."

The Muskingum, the Scioto and the Miami Valleys were soon populated and very productive they proved to be, but it was necessary to do something besides produce. It was necessary to sell. To wagon flour over the Allegheny Mountains on almost impassable roads to New York, Philadelphia, or Baltimore, was largely out of the question.

When that band of forty-seven immigrants landed on the bank of the Muskingum and thus began the first permanent settlement of Ohio, Louisiana was a Spanish territory, and New Orleans was a considerable and thriving town, cut off, however, from trade with the Ohio Valley by Spanish arms, which guarded the Mississippi river.

On the year before the Indiana side of the Ohio was permanently settled, a general, and of course a colonel, of Kentucky, by name James Wilkinson, determined to raise this embargo, which by diplomacy, that is, by downright lying, he succeeded in doing, and in January, 1788, twenty-five flat boats loaded with flour, bacon, tobacco, butter and hams, guarded by one hundred and fifty armed, well drilled and officered men, moved out into the Ohio and floated down the Mississippi river to the Crescent City. Thus opened a hazardous but profitable trade to the Ohio valley settlers. It was long before the days of steamboats. To float flatboats down the Ohio and Mississippi rivers was sufficiently hazardous, but to walk back through a wild, and sometimes hostile, country was a task only for adventurous and courageous men. There was, however, no lack of men willing to strive for the profits, and the trade grew to tremendous proportions, which continued until after the war of 1812.

With the amazing immigration into and the development of the Ohio valley it was not many years before the supply exceeded the demand, and it was seen that some other outlet must be found. At this juncture George Renick, of Ross County, proposed driving fat beeves to the Eastern seaboard. In 1805 he crossed the Alleghenies with sixty-eight head of fat steers, and drove them into Baltimore in good condition, selling them at a profit. Thus a new industry started, which, as the flour trade with New Orleans had formerly done, grew with great rapidity, and continued for many years. In 1817 Felix Renick drove one hundred head of fat steers through to Philadelphia, receiving for them one hundred and thirty-four dollars per head. A year later George Renick drove through to New York the first Western cattle ever seen there, which sold for sixty-nine dollars per head.

The Virginia practice of grazing cattle and fattening them out of doors with shock corn was transplanted to this soil and climate, and thus became a fixed custom of American agriculture. Imported with this practice from Virginia were some English cattle, which subsequently exerted a far-reaching influence. They had much to do in making the Ohio valley the cradle of shorthorn breeding in America. Many were the importations of shorthorn cattle into this region, but none were more noteworthy, perhaps, than those of the Ohio Importing Company, a company formed in 1833 by about fifty men of the Scioto valley, in which Felix and George Renick were again the leading spirits. In 1836 this company sold at public auction forty-three imported shorthorns at an average of eight hundred and three dollars and twenty-five cents. In 1837 the same company sold fifteen head at an average of one thousand and seventy-one dollars and sixty-five cents.

There is not time in a brief talk of this kind to trace the rise and decadence of the dairy industry on the Western Reserve; to tell of the legacy that the farmers of southwestern Ohio, through the establishment of Poland-China swine and the merchants of Cincinnati through the establishment of packing houses, bequeathed to the swine industry of America, nor is there time to do credit to the sheep breeders of eastern Ohio and western Pennsylvania. In 1850 nearly one-fifth of all the sheep raised in the United States were raised in Ohio.

In 1825 the national road was completed into eastern Ohio. In 1832 the Ohio and Erie canal had been built from Portsmouth to Cleveland. The first railroad was built in Ohio in 1836. In 1852 eight hundred and ninety miles of railroad were in operation. These agencies gave the Ohio farmer a market, and right well did he take advantage of it. It was the days of great prosperity for the Ohio farmer. The eastern farmer, on his relatively poor and high-priced land, suffered severely by this competition.

But silently as a thief in the night new factors arose to steal away the Ohio farmer's trade. The railroads had pushed their way into the fertile and treeless plains that for ages had lain ready for the plow. On these prairies countless herds could be pastured without cost for land. By 1850, the mower; by 1860, the reaper; by 1880, the self-binding harvester, made possible a development of the West, the like of which the world had never before seen. With it came millions of bushels of oats and corn, and millions of tons of hay and straw, which before they had any practical value must be turned into animal product. With the consolidation of the railroads in the great transcontinental lines, and with the establishment of steamboat navigation upon the lakes, the live stock industry of Ohio suffered from the same fierce competition of the West that the Eastern farmer had been suffering from his Ohio neighbor. The prostration would have been much more serious had it not been for the unparalleled local markets, which the farmers of Ohio enjoy. Those farmers, who realized the change in the situation and adjusted their business to meet it, however, in the last quarter of the century, have gotten along comfortably, and some have made considerable money, but with many who did not the story has been different. Such is the very brief and very inadequate sketch of the live stock industry of Ohio in the past. What of its future?

Every one knows, who is at all conversant with the live stock industry of this country, that the blood of the live stock man has again begun to boil. During the past year some of the old records in the way of prices have been smashed and new ones made; breeding cattle selling in four figures is again a common occurrence. In December, at Chicago, a carload of premium steers at public auction sold for fifteen dollars a hundred. The well-named steer, "Advance," champion at the International Live Stock Exposition, sold at public auction for one dollar and fifty cents per pound, or for two thousand one hundred and forty-five dollars. No one claims the steer was worth this money for beef, but it was in no sense a fictitious price. It is an indication of the times. It strikes me as very significant that men daily ship cream, and sometimes milk, through Columbus to be used in the retail trade of Pittsburg. A gentleman has recently been trying to establish a milk-condensing company in Columbus. He is a commission merchant from Philadelphia. He claims that he is interested in establishing a factory in order that he may have more condensed milk to sell in Philadelphia. If this be true (I do not assert it is true), it is very significant.

Is this only a boom? It certainly is a boom, and a boon as well to the live stock man. Is the boom going to burst? Let us get right close to this subject for a moment. Here is a chart that shows the number of domestic animals in the United States yearly for the past thirty years according to the estimates of the United States Department of Agriculture. With these figures I have connected the census returns for 1860. (Here the speaker traced the course taken by each class of domestic animals as shown on the chart.) It is here only necessary to recall that in 1870 the United States had not yet recovered from the effects of the most disastrous civil war of modern times. It would be intensely interesting to trace the progress of the live stock industry during the past thirty years. Time, however, forbids. I must ask you to take it in at a glance. This line (pointing to the population line) shows that the increase in population has been practically uniform since 1870. In order to compare this increase of population with the decrease of live stock, I have added the number of sheep and swine together and divided the sum by five. The result I have added to the numbers of horses, mules, milch cows and other cattle. The sum is what I call animal units. A glance at the upper line shows that the number of live stock began to increase sharply in 1875. From that year up to 1892 the live stock of the United States increased more rapidly than the population. Whatever the causes of this increase, it was made possible by the development of the vast country west of the Mississippi river, an area considerably over twice as large as that east of the Mississippi. Now observe what happened.

In 1892 we had the largest supply of live stock we have had in forty years. Now we have the least. Do you see it? Are you awake to what this means? Is it any wonder that the live stock man's blood boils? The comparatively slow increase from 1875 to 1892 and the rapid decrease in the past eight years are

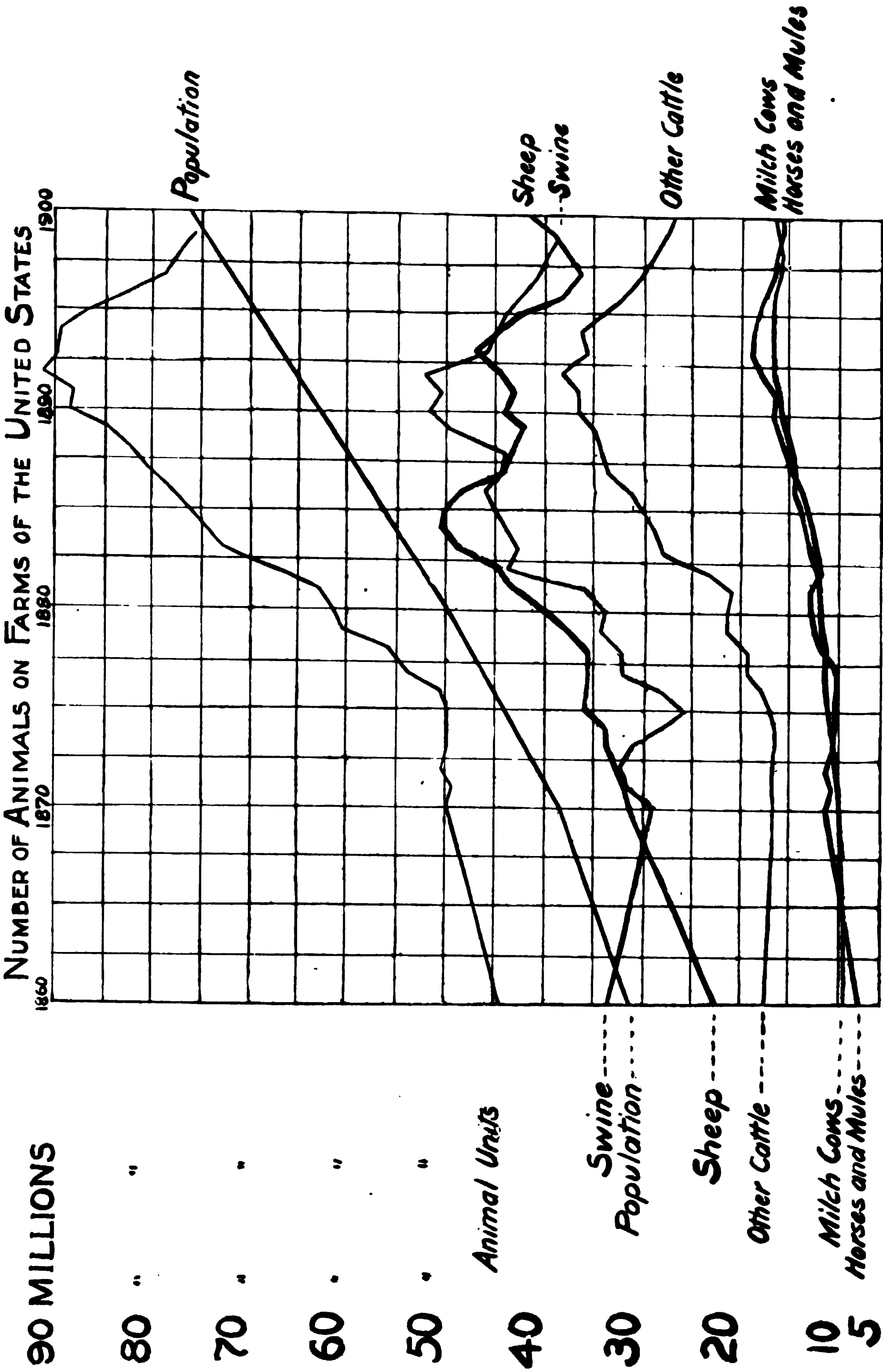

NUMBER OF ANIMALS ON FARMS OF THE UNITED STATES
1860
1870
1880
1890
1900
90 MILLIONS
80 "
70 "
60 "
50 "
40
30
20
10
5
Population
Sheep
Swine
Other Cattle
Milch Cows
Horses and Mules
Animal Units
Swine
Population
Sheep
Other Cattle
Milch Cows
Horses and Mules

Figure 1.

significant facts. Not only is the home demand increased by virtue of the increased population, but the foreign demand has been increased as well.

Here is an instructive table. It shows our exports of animals and animal products and of bread stuffs in millions of dollars for five-year periods:

	Animal Products.	Bread Stuffs.	Total.
1871-75	347	535	882
1876-80	620	848	1,468
1881-85	681	782	1,463
1886-90	616	698	1,214
1891-95	872	909	1,781
1896-00	1,012	1,210	2,222

I have purposely avoided values in this discussion, because values are often misleading. We are sometimes the richest in worldly goods when they are worth the least. It is no matter whether a given rib roast cost sixty cents or one dollar, it will serve the same number of guests. The animal values of the live stock of the United States during the past half of the century would not furnish a true guide for predicting the future. In like manner, the value of our exports is not an exact guide to our foreign trade. Export trade may be increased by the rise in prices abroad or a fall of prices at home. It is, however, impracticable to give the exports in quantities. I, therefore, give them in values with the caution indicated.

Comparing the first half of the "seventy" decade with the last half of the present decade, it will be seen that animals and animal products increased about three times, while bread stuffs increased less than two and one-half times. The export of bread stuffs tends to withdraw from domestic consumption products which either directly or indirectly would otherwise be used in producing animal products. It is worthy of notice here that the annual export of animals and animal products during the past five years has been eqaul to one-tenth the value of all animals to be found any January first upon the farms in the United States during the same period.

This is all very well, but I do not yet see where the Ohio man comes in. Do you? Of course, if the Ohio man is not in it somehow, this discussion is of no use or I have got an audience under false pretenses. It is obvious from what I have shown that there is a scarcity of animal products in the United States. Are we in danger of a meat famine? By no means. The demand will cause the supply to be created. Will meat products be again as cheap as before? In this revival of the live stock industry will the Ohio farmer suffer the same fierce, unequal competition that has been his lot during the past twenty-five years?

On Sunday, July 2, 1899, I stood on the bathing pavilion of Saltair in the great Salt Lake, gazing over the most desolate and dead country I had ever seen. It was Charles Dickens who said that there was nothing deader than a door nail, except a coffin nail, but Charles Dickens had never seen the Great Salt Lake and its surrounding territory I said to myself, I do not understand how any body of people, religious fanatics though they be. could ever have settled in such a desolate place. Imagine my surprise when I subsequently found it stated that formerly "more than one hundred thousand acres of land that were as inviting to look upon as possible were spread in plain view of all the people of Zion; deep soil of finest texture and of such fertility that the first crops were marvellous, were finally brought under systems of costly canals; villages with school houses, churches, stores and fine residences sprung up at close intervals, and there were more town sites located than there are buildings to show for them at the present time." Life and death go hand in hand. The life-giving water used to irrigate these lands took with it the deadly "alkali" which has proven the destruction of so much of the choicest lands of the irrigated sections.

In one of the railroad circulars, put out for the edification of the traveling public, occurs the following language: "Immediately after leaving Ogden, the route lies through a valley made productive through irrigation. Next the traveler obtains a splendid view of Great Salt Lake, and afterwards comes the Sierra Nevada Mountains with varied scenery, unrivaled for picturesqueness and grandeur." Only those who have traveled on the fast express train two days and a night or two nights and a day through the frightful desert that lies between the Great Salt Lake and the Sierra Nevada Mountains can fully appreciate the charming omissions in this railway description. Our party left Salt Lake City Sunday night, and Monday morning we were still in western Utah. As I looked out upon this country, which, except for sage brush, seemed to contain neither vegetable nor animal life, I was sore puzzled. I said to myself, and then I repeated it to others, "I do not understand how the forty-niner ever could have followed this trail. There is absolutely nothing here upon which either man or beast could subsist." In my youthful impetuosity I stormed up and down the Pullman car repeating this statement with variations. After I had been allowed to display my ignorance sufficiently, a well-informed gentleman said to me, "When the forty-niner came through here the grass was knee high." I looked at him in amazement; not a spear of grass is now to be seen. "Right here in this country we are now passing through was formerly the feeding ground of the sheep of Utah. They are now up in the mountains," he next remarked. If possible, I looked at him in greater amazement. "Now," said he, "I will explain this matter to you," and this in substance is what he told me: First came the cattle man, who ranged his cattle over this country and sought to control it by buying comparatively small tracts of land wherever water could be obtained. If a ranchman owned the water privileges he was in safe possession as against any other cattle man, of thousands of acres, it may be, that were tributary to the water. The cattle man, however, soon found to his sorrow that he was not in safe possession of this land as against the sheep man. Sheep will go much longer and farther without water. A physician, who was also financially interested in stock, asserted to me that they would go thirty days without water. Be this as it may, it has been abundantly proven that they can pasture clear around the cattle man's water privileges. This is death to the cattle man's interest. In the first place, it is well known that cattle will not follow large bodies of sheep; in the second place, the sheep eat the grass too short. But these are the least important things. It does sometimes rain out there. When it does rain, the soil gets a soft, adobe mud, quite different from Eastern mud. Sheep must, of course, continue to eat whether it is wet or dry, and eating as they do with an upward lift, when the soil gets into this soft condition they pull up the grass by the roots. Where the forty-niner found the grass knee high, where only a few years ago thousands of cattle and tens of thousands of sheep fed, the country is a barren waste, which does not now even support jackrabbits, sage hens or rattlesnakes.

All men may not agree as to the details as they were related to me, nor can I lay any claim to having made adequate observations of a country which is considerably larger than all of the United States east of the Mississippi river by going twice across it on a limited train. The following table, however, from the statistics from the United States Department of Agriculture, shows the extent to which sheep have displaced cattle in the country west of Denver:

"WESTERN UNITED STATES IN MILLIONS.

	Cattle.	Sheep.
1875	1.6	8.2
1880	2.3	12.9
1885	5.6	18.9
1890	8.2	20.8
1895	7.6	19.5
1900	5.9	24.8"

This table shows that while sheep have increased less than twenty percent. other cattle than milch cows have decreased over twenty-eight percent in this Western country. Or, to put it another way, while cattle have decreased two and three-tenths millions, sheep have increased four millions. Of course four million sheep does not begin to compensate for the loss of two and three-tenths millions cattle.

Other consequences are quite as important to the future of that country as the loss of live stock. The sheep industry there is thoroughly nomadic. The sheep herder with his covered wagon, his cooking outfit, his dogs and his gun, is a man without any fixed habitation; pays nothing for the use of the land; contributes nothing to the taxes or life of the state. An Eastern man, it was asserted, grazes one-tenth of the state of Wyoming by means of these nomadic herdsmen and boasts that he would not own a foot of land in the state, not even a town lot. His money is spent in the east, while the hen that lays the golden egg is being destroyed in Wyoming. On the other hand, it is asserted that the cattle ranchman had, by necessity, a fixed habitation, paid taxes, was a part of the life of the state in which he made his money and had an incentive to improve its conditions.

There is also a humanitarian side to this subject. In many cases, perhaps the majority of cases, no provision is made for the sheep on the ranges, even in the coldest weather. In the winter of 1899 one man lost six thousand sheep from starvation. A meeting of sheep men was subsequently held to devise means of avoiding such disasters hereafter. This man, when approached upon the subject, said, "No, sir, I am no fodder man. I am a sage brush man." It was cheaper, he thought, to let the sheep starve, therefore starve they must.

The condition in the state of Nevada, which is probably an extreme case, and perhaps not yet typical of other states, may be cited to bring the situation home to the eastern mind. Nevada in the past has had three sources of wealth, viz., pasture, lumber and mining. I have told what has become of much of her pasture on the lower levels. There is still left some pasture higher up in the mountains.

I rode one afternoon, going from Lake Tahoe to Carson City, down the eastern slope of the Sierra Nevada for perhaps ten miles along a flume, which had formerly been used in transporting timber to the box factory at Carson City. No logs now floated down the flume—the box factory was closed. The boxes were no longer made for lack of timber from which to make them. Standing in Reno, the principal town in the state, I looked out upon the mountains and said, "Your mountains here do not seem to bear any timber." "Mackey, the lumber king, had two hundred and fifty men four years cutting timber in sight of this town," was the reply. It is perhaps needless here to remark that the affecting of the water supply is not the least of the consequences which have followed the destruction of these mountain forests.

In going from Carson City to Reno our train made a stop where I subsequently learned was once a thriving mining town of two thousand inhabitants. Not a sign of a dwelling is now to be seen. With its three principal sources of wealth gone or reduced, it is not surprising that the state should be decreasing in population.

Will this country, which has been so ruthlessly destroyed, be again made productive? I sincerely trust so. It is to the interests of the whole country that it should be. Already, as the result of the splendid researches of investigators, methods are being advocated to remove the deadly "alkali" which has been such a demon to irrigation. Men, who have given the subject the most careful study, believe that much of the arid ranges can, by a proper system of husbandry, be made productive again. I am not one of those who finds satisfaction in the misfortune of his neighbor. I believe that the general government should, if need be, do what it can by wise legislation to help this country to a new prosperity. I do not know whether any of the particular forms of legislation that have been proposed are wise or not, nor do I know what would be wise legislation, but I am sure that no selfish interests should be allowed to stand in the way of a judicious and helpful development of that great section. There must be in this country no north, no south, no east, no west. This is aside, however. It has been my purpose to trace some of the larger economic conditions so far as they relate to the live stock interests of this country. In order that we should understand the future it has been necessary for me to state the conditions as they exist.

We started in on the Atlantic seaboard over two hundred and fifty years ago to subdue the continent. In 1800 the United States territorially nowhere crossed the Mississippi river and nowhere touched the Gulf of Mexico, much less had our agriculture and civilization reached these limits. By 1850 we had acquired our present continental limits, Alaska excepted, but the great west and northwest was agriculturally an undiscovered country. In the past fifty years we have swept the continent with our agricultural operations. In 1875 central Iowa was yet a wilderness. This map shows how rapid was the live stock industry west of the Mississippi between 1875 and 1890 and how it has declined since that time. For two hundred and fifty years we have been able to practice a system of highway-robbery agriculture. The highwaymen's business was profitable while it lasted. During the first half of the century the Ohio valley states with their fresh lands sorely tried the eastern farmers. During the last half of the century the states west of Chicago have enjoyed an immense economic advantage and the Ohio valley farmers have in turn suffered from this competition. But we have now reached the Pacific coast. The old conditions seem to be forever gone. There are no longer cheap but valuable lands between Chicago and Denver. The cream has already been taken off of the lands west of Denver. There the live stock industry has already reached its highest pioneer development and has declined. It is not my purpose to prophesy, but it would now seem that we have come face to face with a new situation. The western farmer can no longer raise cattle so nearly free from cost. This is a situation that every thoughtful man has known would come sooner or later, but it has come upon us so suddenly as to be almost sensational. In the new era of live stock development, which is now so manifestly in progress, it would seem that the eastern farmer is no longer to wear the handicap which he has worn during the last half of the last century. The young man of Ohio with fifty years before him faces a different situation so far as the rearing of live stock is concerned than did his father fifty years ago. Live stock will, of course, be cheaper. The present demand will create a supply, which will bring prices down again, but in the competition that follows for a share of this trade the Ohio farmer now has a somewhat equal advantage, and in the way of local markets, a superior advantage. He is no longer to suffer from the fierce competition incident to the pioneer development of the West.

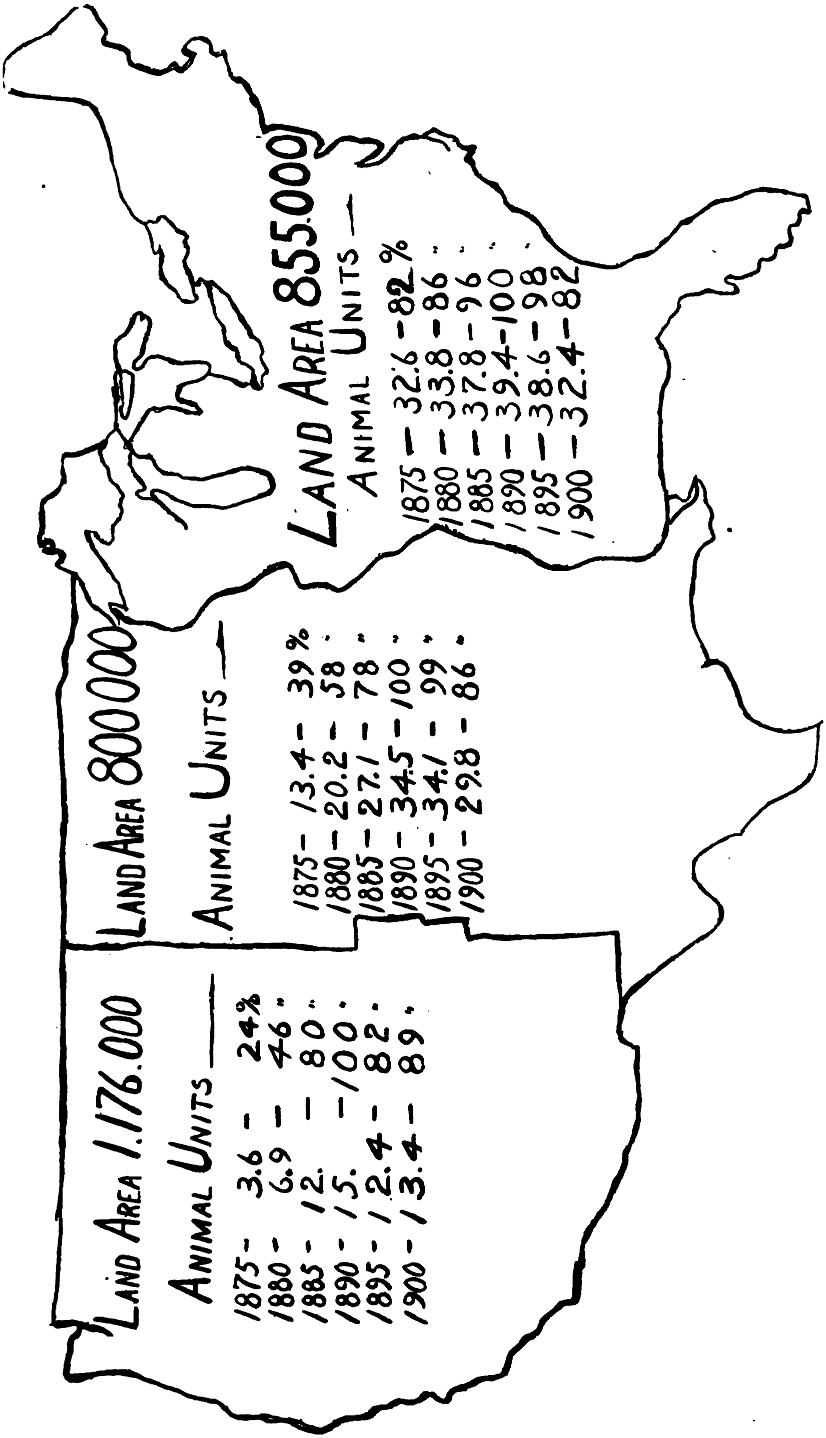

Land Area 1.176.000
Animal Units
1875- 3.6 - 24%
1880- 6.9 - 46"
1885- 12. - 80"
1890- 15. -100"
1895- 12.4 - 82"
1900- 13.4 - 89"
Land Area 800000
Animal Units
1875- 13.4 - 39%
1880- 20.2 - 58 "
1885- 27.1 - 78 "
1890- 34.5 - 100 "
1895- 34.1 - 99 "
1900- 29.8 - 86 "
Land Area 855000
Animal Units
1875 — 32.6 - 82%
1880 — 33.8 - 86 "
1885 — 37.8 - 96 "
1890 — 39.4 - 100 "
1895 — 38.6 - 98 "
1900 — 32.4 - 82 "

Figure 2.

The President: The next business on the program is the report of the Committee on Resolutions. But I will state to you that there were no resolutions offered, and the committee has, therefore, no report to make.

Thereupon, on motion, the annual meeting of the State Board of Agriculture adjourned *sine die*.

REPORT OF THE PROCEEDINGS

OF THE

ANNUAL MEETING

OF THE

STATE FARMERS' INSTITUTE,

Held in the Senate Chamber, Columbus, Ohio,
January 15 and 16, 1901.

The meeting was called to order by the President, Mr. W. W. Farnsworth, at ten o'clock A. M., Tuesday, January 15, and after making some announcements he delivered the annual address of the President, as follows:

Friends and Fellow Farmers:

Having by some mysterious chance been made the recipient of the honor of presiding over the deliberations of this body of representative farmers of our State, it becomes my duty to deliver the customary opening address. As this, like the preface to a book, is to serve as a connecting link between "nothing" and the more important matter which is to follow, I will promise that my address shall have at least one merit, that of brevity.

This gathering may well be called the grand central high school of the farmers of Ohio where we meet in annual reunion to exchange each with the other the wealth of experience we have received from kind mother nature in the past, that our burdens may be lightened and our lives made happier by reason of the increased power we thereby possess.

Very many of us also have a deeper responsibility resting upon us. To some of us is entrusted the honorable and responsible position of Institute Instructor, and the fact that we are taking the money of the state and occupying the time of hundreds of thousands of the farmers of Ohio, should admonish us that the time of institutes throughout the state is valuable, and that we are not faithfully fulfilling our duty if we do not strive by every means in our power to do our part toward returning a full equivalent for this outlay. If we can not leave with our audience some seed thought, some suggestion that will make the labors of some of them pleasanter or more productive, and brighten their lives, then we are not worthy of our hire, even though the galleries may ring with applause of our wit and eloquence.

It is a characteristic of the American people that they are never content to rest upon their oars and complacently view their past achievements, but continue to advance from good to better, from better to best. This spirit has brought us to the front among nations in all lines, and we can feel proud that today the American hog (no reference to the trusts) and the American sheep form important factors in the food supply of the world. The American steer sells at one dollar and fifty cents per pound, the American horse is the best in the world, and in peace or in war the world waits upon the will or "the won't" of the American mule. American corn is making well-deserved progress in the markets of the world, and American fruit is carrying off the lion's share of the prizes at the Paris Exposition and creating an interest and admiration which can not fail to be of much benefit in the future. I think I am justified in adding that in many of these lines of production Ohio leads the nation. Where can you find better cattle, sheep or hogs, or swifter horses than in Ohio and what state produces better corn or more lucious fruit.

The same comparison will in the main apply to our standing in the farmers' institutes. Ohio has justly been called the Mother of Institutes, and in many respects still leads all her sister states. This is well; let us now strive to do better. The crude work which satisfied the average audience twenty years ago would fall flat upon the ears of that audience today, and while beginners are continually engaging in our calling, and we must still keep up the primer class, yet even the primer class is taught in a very different way from that in vogue a score of years ago. Unless we keep pace with the continually advancing standard of intelligence of the farmers of Ohio, our institutes will suffer the same fate which has unfortunately overtaken some of our county fairs, and degenerate into an annual reunion, merely for social intercourse and an interchange of gossip, with possibly the addition of questionable features to "draw a crowd." Unfortunately the idea seems to be entertained by some that the main object of the institute is to please for the time being. While a certain amount of sentiment and humor is not only allowable but highly commendable and requisite, a garnish as it were to the solid meat of reason, still I believe that the true mission of the institute lecturer is not to lay down specific rules for the government of all farm operations, but rather to teach "foundation principles" and urge the hearers to make the application to suit their own particular requirements. Teach them to think for themselves. Facts like food are of no value until digested and assimilated.

There are many localities where a better institute would be held with one state speaker than with two, inasmuch as more time would be available for discussions and questions and for the development of home talent, two of the most valuable features of the institute, and features in which the Ohio institute already excels. The benefit received by an andience is not measured by the amount of sense or nonsense fired at them by the speaker, but rather by the share of it which they appropriate and use, and the person who can be induced by any means at the command of the committee on program or the chairman of the institute to participate ever so briefly, in speech, question or discussion, becomes at once identified with the interests of the institute, and both the institute and the individual are benefitted thereby.

There is a valuable feature in connection with the institute work of some states which has never been introduced in our own state to any extent. I refer to the department of Domestic Science. I am aware to some extent at least of the obstacles which confront "the powers that be" in an effort to add this feature, but we hope some feasible plan may be evolved whereby we may secure the advantages without the objectionable features. The charge has been made (and unfortunately it is apparently founded on facts) that we devote vastly more time to studying how to feed and care for our domestic animals than to the care and nourishment of our families. Statisticians tell us that about one-half of the earnings of a nation is spend for its sustenance. This being so, it is not highly important that this immense amount of money be wisely expended, that we may obtain not only the greatest possible amount of nutriment to mind and body for each hard-earned dollar invested, but that it may be in such form and in such proportion that it may be converted into the greatest possible amount of mental and physical force, and with the least possible wear and tear to this wonderful machine of ours which we can never, in this world at least, "trade in on a new one" to the obliging agent? ..

Changes in the industrial world are occurring with great rapidity, and we know not what a day may bring forth, but we do know that we have the promise that seedtime and harvest shall not fail, and feel certain that as long as we keep faith with mother earth and our flocks and herds we shall be fed and clothed. The rapid introduction of improved highways, electric railways, better schools and free rural mail delivery has done much to make life on the farm pleasanter and to keep us in closer touch with our brethren in other callings. Many of these improvements have been secured mainly through the influence of the institute and kindred farmers' organizations.

Some are found who are inclined to take a pessimistic view of the fate of the farmer of the future on account of these many innovations. The experience of the past is the safest guide we possess by which to foretell the future. We have in the past seen the American farmer boys triumphing over all obstacles and becoming the leaders of the nation, whether in war or in peace, and we have reason to believe that the child who is fortunate enough to be born on an Ohio farm home, who is in the companionship and direction of its parents as those of few other vocations can be, who is taught how to do "by doing," and who is brought into close touch with the hardships and pleasures, the sorrows and joys of nature, will, in the future as in the past, prove himself equal to all emergencies, and rise equal to all occasions.

The President: Now, gentlemen, we will have the pleasure of listening to an address by Mr. A. Shirer, of Dayton, Ohio, upon the subject "The Clover Problem," a subject which is of a great deal of interest to all of us.

Mr. President and Members of the State Farmers' Institute:

Forty years ago, I have observed, clover sod, after hay was made and then pastured until fall, always produced better corn than timothy sod. Forty years ago, I have observed, success with clover depended largely upon the thorough preparation of the seed bed. Forty years ago, I have observed, farmers always applied their home-made manure on the wheat land which was to be followed with clover. Forty years ago, I have observed, some farmers used clover hay instead of timothy for horse feed. Forty years ago, I have observed, those farmers who kept sufficient stock to consume the clover hay and carefully saved the manure, maintained, yea, increased, the fertility of the soil without plowing under green crops or reverting to commercial fertilizers. Forty years ago, I have observed, clover improved the mechanical condition of the soil.

If such were the facts forty years ago, before the birth of agricultural colleges, before experiment stations were organized, before farmers' institutes appeared as an educational factor, the question that confronts us is, Are these same facts true today, or have our scientific researches during the last twenty-five years changed the once fundamental principles of successful farming?

Today, as well as forty years ago, clover is the sheet anchor of the American farmer. The discussion of the clover problem is then fundamental; fundamental because it pertains directly to the fertility of the soil and upon the fertility of the soil depends all agricultural occupation. No matter whether breeding or feeding cattle, growing wool or mutton, producing pork or lard, or cultivating grain, fruits, vegetables and flowers, the success of any of these occupations depends upon the fertility of the soil.

Since clover improves the fertility and also the physical condition of the soil, since clover prevents the loss of soil fertility by washing and percolation, since clover furnishes a food rich in protein, since clover is the best food for all young animals, since clover has none but good qualities if properly handled, the question then arises, can I afford to grow clover? The owner of a hundred and sixty acres says yes, the owner of thirty acres says it is doubtful, the owner of ten acres says no. Can you afford it? Try it and be convinced.

Since clover is one of the foundation stones of successful agriculture, the question when, where and how to sow it is of prime importance. Clover is generally sown in the spring among rye or wheat; in some localities sown with oats it brings good results; still others succeed by sowing it among corn at the last cultivation. When and how to sow among rye and wheat is rather a difficult question to determine. The time no doubt depends upon the manner of sowing. One point we should remember: the seed should be lightly covered. This may be accomplished in two ways: First, by sowing when there is daily thawing and freezing; second, by deferring it until later in the season and then harrowing the grain both before and after sowing. Many farmers expect entirely too much from the delicate clover seed, scatter it on the hard ground and expect it to sprout and root and withstand frost, heat and the blasting wind. They would not expect the ironclad turnip seed to succeed under such shabby treatment.

How to keep the young clover alive after harvest is another important question. We may have a splendid stand, but just at the time the grain is cut there may be a severe drouth with intense heat, and in a few days our clover may be dead. We may prevent this by following the reaper with the mower, cutting the stubble and clover as close to the ground as possible. The stubble and clover so cut off drop down and form a mulch and thus protect the young clover from the rays of the sun.

As a rule it does not pay to pasture young clover.

It seems that a young clover patch is the home for ragweed and foxtail. Whenever we find these or other weeds obtaining considerable growth we should mow the clover, not cut it five or six inches high, but as low as possible. Some varieties of weeds when cut five or six inches high will sprout again and make a growth larger than the original plant, whereas if cut close to the ground they may die.

What shall we do with our clover the second year? Some farmers turn under this clover in May and plant it to corn or potatoes; no doubt but it pays. Others who are not in such a hurry wait a year or two longer. Shall they make hay or shall the clover have undisputed possession of the field until the plowman arrives? To obtain the best return from the clover it should be made into hay, the hay converted into beef, mutton and horse flesh, the manure properly saved and returned to the field. But the objector appears and says. "Why not let the clover have its own way? Let it grow up and die. It saves the trouble of making hay and carting the manure back." There are a few facts besides laziness that must be taken into consideration. The roots of clover that is cut at the proper time to make hay increase more than the roots of clover from which the tops are not removed. We should constantly bear in mind that the larger the root growth the more beneficial the clover is to the soil. There is no doubt that the increased root growth in many instances is worth more as a fertilizer than the tops that are allowed to decay on the field. Hence we can have our hay, our sleek cattle and plump sheep, and that valuable pile of bacteria—the manure—all for the sake of the labor involved in obtaining them. We should also remember that the tops left to die and decay in the open field lose a great deal of their fertilizing ingredients. I am not aware of any analyses having been made of such clover tops, but several experiment stations report that pea vines will lose more than half their nitrogen by being left on the ground for six months. It is in the nature of many plants, and clover is one of them, at the time of blooming for the tops to rapidly lose nitrogen, phosphoric acid and potash. In other words, these elements make an effort to return from whence they came. If clover is not made into hay it does pay to cut it in June and let it remain on the ground. In order for the clover plants to furnish the greatest total amount of fertilizing ingredients they must be kept active during the whole season.

I admit that mulching is nature's process of restoring fertility. From this very fact some argue that it is economy to let all the clover remain on the field, but we should bear in mind that if we do not make hay the ground is more or less covered the greater part of the year. The clover plant in our changeable climate is a great protector of the soil during the winter months.

Frequently those who advocate leaving the clover on the field find it very convenient at plowing time to set a match to the dry material. The man behind the smoke says it pays. "Just see how this burned field produces a crop just as good as my neighbor's who made hay!" What do these crops prove? Just what we said before. Clover tops dying and drying in the open air lose nearly all their fertilizing ingredients. The only proper place to burn clover is in the stomach of some useful animal.

Is the common red clover annual, biennial or perennial? Perhaps it is all three. Some botanists tell us it is a biennial, others that it is a short-lived perennial. We should remember that the mission of many plants is fulfilled when they produce seed, and the life of many clover plants is ended when they ripen seed. But suppose we prevent them from ripening seed, what will be the effect? By such a process we sometimes can prolong the life of the plant several years. There is sufficient evidence that the life of the clover field may be prolonged by careful management.

Can I afford to sell clover hay? "No, no," cries many a farmer; "too valuable an article for manure." Perhaps these same farmers sell timothy hay. The question is, which is the most economical for the farmer to sell, timothy or clover hay? This opens a question for serious consideration. We know that the manurial value of clover—on the basis of commercial fertilizers—is often greater than the price the hay brings in the open market. We also know that clover hay is worth more than timothy hay for manurial purposes. Hence some conclude that it is better to raise timothy for sale and clover for home use. This opens the question, From whence do the clover and timothy obtain their fertilizing ingredients? The profit or loss of the selling price always depends upon the cost of the article. How much does the timothy cost us? Every pound of nitrogen, phosphoric acid and potash a ton contains came directly from the soil that other crops might have appropriated. The clover, however, is a plant of quite a different nature. Its tap roots go down deep into the soil and bring up mineral matter which are out of the reach of timothy roots. The nodules of the clover roots have the power of converting the free nitrogen into nitrates. Hence the ingredients that make clover hay so valuable are mostly obtained from sources out of the reach of other plants. The fact is simply this: a ton of timothy hay may leave the soil five dollars poorer while a ton of clover hay may leave the soil twenty dollars richer. Chemists tell us that the roots and stubble of an acre of ordinary clover contain about two hundred pounds of nitrogen. Some are still doubting whether clover actually enriches the soil. They claim that the clover is only a scavenger collecting that which already exists in the soil. If no nodules form on the roots then undoubtedly this theory is true, unless the members of the other party—and there are a great many of them—can substantiate their point; namely, that the clover leaves absorb the free nitrogen of the air. No doubt for this latter reason many sow their clover seed in the air, yea, even in the moon instead of in a good seed bed.

A good seed bed means one that is in a condition to encourage the growth of bacteria which form the nodules on clover roots. We hear considerable about inoculating the soil with a preparation called nitratin, but every farmer should have the genuine medicine on his own premises, good stable manure. Scientific investigation in Europe, corroborated by practical experience in the United States, indicates beyond a doubt that continued success with clover depends upon the moderate use of stable manure. The clover of Ohio has been too much treated as an incidental crop until in some localities it has actually become an accidental crop. In other words, too many looked upon the clover as the lazy man's friend. "Just scatter the seeds," they said, "and the leaves and tap roots will gather the precious material that is so expensive in commercial fertilizers and feeding stuff." It is true that we find sufficient plant food in the roots and stubble of an acre of average clover to produce 900 bushels of potatoes, 300 bushels of corn, 125 bushels of wheat, 200 bushels of oats. This being the fact can I not afford to grow clover? Is it not economy to produce the protein on the farm instead of buying it, by a crop which leaves such a large deposit of plant food in the roots and stubble? Is it not practical economy to maintain the fertility of the soil by proper rotation with clover as one of the chief crops? Is it not more economical to make the clover into hay, convert the hay into beef, mutton, milk and butter, and properly save and apply the manure than to buy fertility?

Since clover is such an important crop to the wise farmer it is doubtful whether its value will come up to the expectation of the shiftless man who burns his straw and clover haulm and ships the manure to the lakes or the Gulf of Mexico.

Clover also greatly improves the mechanical conditions of the soil, and also in some instances clover sod produces crops less subject to fungus diseases.

It is evident that the all wise Creator has made noble provision for us poor, lazy, ungrateful creatures. Instead of the atmosphere being a compound it is simply a mixture. Instead of giving to some genius the ability to extract the nitrogen from the atmosphere and sell to us as a fertilizer, He has given to us the leguminous plants through which we can enrich our soil, but we should remember that these leguminous plants are merely the tools by which we can make use of the free nitrogen of the air. These plants will not perform their mission unless we do our duty. Many of these plants look directly into our face and say, "When a lazy man prays, angels close the windows of heaven." Or, in other words, the Lord will only help those who help themselves. Do you want clover to enrich your soil with nitrogen? Then do not depend upon the leaves gathering from the air nor the tap roots from the subsoil, but go to work and prepare a seed bed that is congenial to the development of micro-organism and your effort will be crowned with success.

The President: This subject is now open for discussion, and I trust we may have a great many short and pointed remarks upon it.

Mr. S. H. Ellis: I just want to mention one point that Brother Shirer brings out that possibly is not of universal application. That is, *absolutely,* he says, young clover should never be pastured. Now, that is from the fact that so much of it is injured by pasturing. I pasture my young clover some, but I try to do it with judgment. I am confident that I can get enough returns from turning a hundred head of pigs or breeding sows into a clover field after harvest to eat off the young clover that is growing up, to pay for all the seed I put on it. I can not do it, not every year, let good sense dictate, but I know from experience and observation that I can pasture young clover and not injure or hurt it a particle. I thought I would mention this one point in Brother Shirer's paper, but I do not go the length he does. *Absolutely,* he says.

Mr. Shirer: The Brother is mistaken. I said *as a rule* it does not pay. I did not say *absolutely.*

Mr. Ellis: Look at your paper again, Brother Shirer. I pasture it and can do it without injuring it, but let good judgment dictate when to pasture and when not.

Mr. T. J. Miller: There is one thought in that excellent paper that I think could be of general application, and that is the promotion of root growth. We can apply that principle in our pasturing, and, as he so well said, it has fulfilled its mission when it reproduces itself, and we can pasture very many more cattle on a field if we keep it well pastured down than if we allow a part of it to go to seed.

Mr. S. H. Todd: We would not like to pasture our clover, especially when it is so young. I can not help but feel that we would do it a great deal of harm, and to bring an illustration here I want to ask Brother Ellis the question, if he were raising children, would he cut their heads off and expect them to grow better? (Laughter.)

Mr. Ellis: Brother Todd is joking now.

Mr. Corey: I realize that we raise too much timothy, but I sow timothy with my clover to prevent my cattle from bloating. I lost quite a number of cattle in that way. I will ask Brother Shirer how he is going to prevent cattle from bloating on clover?

Mr. Shirer: I do not know.

Mr. Ellis: I have not sown a bit of timothy in twenty-five years. I keep my cattle from bloating by turning them on blue grass pasture. (Laughter.)

Mr. Shirer: I was raised in Eastern Pennsylvania, and when I was a boy we were not troubled with cattle bloating. Why it is so prevalent in Ohio I do not know, but in my boyhood days we had no trouble of that kind. It may be something else than clover that does it.

Mr. O. E. Bradfute: Mr. President, I do not know that this is strictly on the subject, but I might make this suggestion to those who are troubled with bloating from clover. We always pasture our clover fields and do not think it injures the clover, and we get good results from it. If you will have a straw stack or some old hay or will keep a little corn fodder where your cattle can get to it, and then place your cattle upon the clover when they are well filled rather than when they are hungry, I think you will find that you will have very few cases of bloating. We rarely, if ever, have any cases of bloating when the cattle are on even almost pure clover.

A gentleman: Give them a little salt.

Mr. Bradfute: Of course, the cattle are supposed to have all the salt they want.

A gentleman: I find that by using a little sulphur with the salt it is better, and I have had no bad results.

Mr. A. A. Giffin: On this question of bloating I agree with Mr. Bradfute, except that I do not use straw or fodder so much. Place the cattle on the pasture when it is dry and then allow them free access to it night and day after they get used to it. I find fewer cases of it by allowing them access to it all the time.

Mr. Geo. E. Scott: Mr. Chairman, it strikes me that one of the most important questions to the farmers of Ohio is how to get a good stand of clover· It has been my experience and observation for several years that farmers have had difficulty in getting good, substantial stands of clover upon their fields. Now, the question arises, what is the difficulty, and how is that difficulty to be gotten over? Now, as to myself, I have not been unsuccessful in getting good stands of clover, but I do not pasture it. The inside fences of my farm are entirely removed, on the land that is cultivated, and we find that the ground that has not been packed by pasturing is in a loose, friable condition, which is so necessary for plant growth.

Mr. John Begg: The great difficulty with me has been to get a good clover stand. In the first months of the summer the clover may come up all right, clover sown the latter part of March or in April, but I have noticed that the subsequent dry weather in June and July will destroy it and I know of no remedy by which we can prevent it.

Now, a word if you please, as to pasturing young clover. I know a great many talk against it, but I do not see how the farmer who is a stock raiser and pursues a system of rotation farming is going to avoid using his fall pasture. Years ago I rented my father's land and I always furnished the seed if he would allow me the use of the fall pasture, and did it cheerfully, and I do not know that it ever damaged the pasture a particle. I always used common sense in taking the cattle off before they got the pasture too short. I do not believe, my friends, that a stock man can afford to let his fall pasture go unless he has almost a boundless tract of pasture on which he can keep his stock otherwise.

Mr. Lowell Roudebush: From my experience I am led to believe that the reason that young clover dies during the months of May and June is that the soil does not contain sufficient nitrogen to feed the plant properly.

Professor A. D. Selby: It seems to me that in the matter of clover stands the changes in agricultural practice already outlined compel us to return to the practice of many years ago when stock feeding was more profitless than in the epoch just closing, and will explain how the humus content of the soil, being reduced, greatly increases the difficulty of getting a clover stand. Now, if I understand the philosophy of the cultures like those proposed by Stutzer and many other German biologists, it is that they inoculate into the soil the cultures of the bacteria which live in the clover and lead to the formation of nodules on the clover, and are thereby essential to the successful growth of the clover. Now, if by any means, the proper nidus of the soil is eliminated and the multiplication of these cultures and these bacteria is prevented you see the consequence will be that the leguminous plants will not have their messmates. And I think that this principle, and the last speaker suggested a phase of it, covers nearly the whole of the problem in a broad sense. Now, even granting that the soils have a sufficient amount of humus content with their indwelling bacteria, there may be seasons and times when clover will be lost after starting and over that we can have no control.

Mr. Shirer: Forty years ago when I was a boy there was a farmer in our neighborhod who was always careless, would not save any manure, and do you know that I could always tell to the very furrow where he cultivated his crop? He hardly ever put any manure on the ground. I am convinced that a good share of manure is the best means of preventing a clover loss.

Mr. G. H. Van Houten: I am surprised to hear so many gentlemen speak of losses by clover bloating. A good many years ago I had several animals suffering from clover bloat, and not having had experience in what is known as "sticking" them to let the gas out, I had Chase's Receipt Book, and followed the directions laid down in that, and very successfully too. I never had a loss and never knew of a loss where the animals were stuck and the gas allowed to escape, and no permanent injury resulted. Care should be taken, however, to put in a small hollow tube so the incision will not close up, which it otherwise would be very likely to do. Sometimes it is necessary to stick even two or three times. It is not necessary to have more than a common knife blade, not necessary to have a blade a foot long to allow the gas to escape. If the animal gets badly bloated before you notice it, of course there is some danger.

Professor J. F. Hickman: I think Mr. Selby and also Mr. Shirer struck the nail as nearly on the head as possible. I speak now from experience we have had at the experiment station at which we have a large number of plots where commercial fertilizer is used exclusively and in the same connection other plots in which barnyard manure is used. Professor Selby spoke of the bacteria in the soil and the necessity of their presence, and we know that it is necessary to have a sufficient quantity of humus, that is, either decayed vegetable matter or decaying vegetable matter. Now, there is another reason, which is this: that where we have plenty of humus in the soil we are better able to conserve the moisture and there is one of the great difficulties. The great difficulty seems to be to bridge over the months of May and June. Why? Because in those months we are frequently short of rainfall, and the wheat plant which is nearly always present with the clover exhausts the water, and the clover necessarily suffers. Now, if you have plenty of humus in the soil you can maintain the moisture and supply both the wheat and the clover plant. Further, any man in this audience perhaps could have gone to our plot last spring and told in which individual case manure had been used and where it had not been used by the fact that where it had been used in sufficient quantity we had a good stand of clover, and where it had not been used for a series of years, no clover had set, and it largely depends upon the one point of keeping sufficient humus in the soil to hold the moisture.

Mr. Jones, Delaware: I would like to ask some of these gentlemen if it is necessary to sow clover with a nurse crop?

Professor Hickman: It is not necessary. You can get a better crop of clover without a nurse crop than with it.

Mr. Jones: Two years ago I sowed a crop of wheat and had no clover, but last year I sowed clover on the same land with a total failure of wheat, but had a nice crop of clover.

Professor Hickman: Just as soon as you do away with the wheat you will have more moisture for the clover. Do away with the nurse crop and you will get better results.

The President: I would like to add just a word on that last point. I have for the last ten or twelve years made a practice every year of sowing clover alone after removing a strawberry crop. The ground is tramped and the soil as a rule is in poor condition, but my soil is naturally retentive of moisture. For the last fifteen or twenty years I have been striving to incorporate into it the greatest amount of humus possible, and I have plowed under my strawberry crop for a number of years so as to establish communication by capillary connection between the subsoil and the surface soil, sowing the common red clover the latter part of June or the first of July and have harvested a heavy crop.

Mr. Jones: I want to ask if a failure to raise a crop of clover isn't because there is too little seed sown?

The President: I think I can answer it in the words of the essayist who said that the farmers expect too much from the clover seed. They scatter it broadcast on the soil and expect the clover seed to do the rest.

Mr. Jones. I would like to ask how much these gentlemen sow to the acre to be successful?

Mr. Robert Hood, Cedarville: My difficulty is, and it seems to be the difficulty of the farmers generally, to maintain the early growth of the clover. I find that much of my early seed miscarried, and I also had difficulty as to the freezing out. I found that if we could have more moisture in the soil we could carry the crop over. I converted the subsoil into soil to a depth of eighteen inches and by that means very largely increased its storage capacity. After this operation of loosening my soil to a depth of eighteen inches and storing the moisture I sowed a crop of oats with the clover and lightly harrowed in the clover. The clover came up fine and at once branched out and became very luxuriant, and the result was an excellent crop of clover the following year. Now, I throw out this idea that by the storing of moisture we not only store the rainfall but the ammonia that the rain brings down with it, and I say we are able to overcome the destruction of the clover crop in the month of June.

The President: Now, who will answer Mr. Jones' question as to the amount of seed to be sown?

Mr. Lowell Roudebush: Ten pounds to the acre.

The President: I think we will be obliged to pass this question. We will now listen to an address by Mr. E. Trumbo, of Cranberry, Ohio, on "Crops and Stock as influenced by Seed, Soil and Climate." I now take pleasure in introducing to you Mr. E. Trumbo.

Mr. President, Ladies and Gentlemen:

I very greatly appreciate this honor conferred upon me by our worthy secretary, and it is with a very humble mind and disposition of heart that I ascend to this rostrum in company with these honorable gentlemen who are so far my superiors in mental discipline as well as more accustomed to public speaking, gentlemen in the highest and best sense of that term, who come to us fresh from the university and the laboratory, from our experimental farms and our nation's capital, where one of our own number has been chosen by our president to fill a high and responsible position, and who as a lecturer and as an orator is second to none in the great State of Ohio.

When I gave my consent to make this address I overlooked one important fact. I had forgotten that in agricultural knowledge this ingathering would be the Athens of Ohio, where so many minds would shine out as so many stars of the first magnitude in the galaxy of agriculture. Many of you, yes, well nigh all, have been raised upon the farm, and by your decision of character, by your integrity of principle, your honesty, as well as your firmness of purpose, in connection with your great force of thought, have reached well nigh the zenith, not of financial wealth, but of social, of moral, of intellectual, and some even of oratorical greatness, and there are none today in this broad expanse of ours, this free government under which we live, that are so great as not to do you reverence. Another fact in connection with your history and your life, you are not among that number who have spent their juvenile years in the reading of novels and romances, who have sipped the dews of fancy and revelled, as it were, among the glimmering phantasms and spectres of morbid imagination, but you are gentlemen who not only speak but who are living for humanity, for good government, for benevolence, and the very glance of your eye tells of your deep research, as well as your exalted and untiring energy; the very expression of your countenance reveals a fountain of inexhaustible riches which will never fade, but will swell their capacity for intellectual, social and moral improvement during both time and eternity.

In entering upon this subject I do not wish to convey the idea that I am going to lay it all open before your minds, for I cannot in the amount of time I shall have to speak, but if I can only succeed in calling your attention to some of the most important features and facts connected with it, I shall feel that I have accomplished my purpose, and will leave you to investigate further at your leisure. Neither do I wish to convey the idea that I have gained all the information contained within my paper from my own practical experience and observation, for, knowing as we all do, that one man's experience and observation is a very insufficient guide in the search for truth, I have made free with the knowledge and experience of other minds.

Many of you remember how prolific the old blue stem wheat used to be, how it would shoot forth so strong and healthy that the fowls of the air could lodge in its branches. I have counted from one kernel fifty-three well-matured heads, but in our agricultural reports it is stated that some kinds have surpassed this considerably. One kind had seventy-two full-matured heads, measuring seven inches in length, and containing six thousand four hundred and eighty grains, of good weight and quality. We all remember how well many of our domestic animals were supplied with bone and muscle, which had been feeding upon our primitive grains and grasses, and were not pigmies compared to those imported from the various parts of the world today.

Plants, as well as animals, seem to have had their places in nature to fill, and some will not do well at all, or perhaps will not survive a change of climate or soil; whilst others, more essential to our well-being, have greater flexibility of structure, so that from our present knowledge and cultivation they have been extended beyond the locality assigned to them by nature. Plants which yield grain we have been most successful with. On one island one hundred and sixty kinds of rice have been produced and grown successfully; and we find in an able article written by Edwin Mead Wilcox, read before the May meeting of the Columbus Horticultural Society, and printed in the November number of the Agricultural Student, that on one large sugar cane estate over three hundred sorts of sugar cane are grown which are suited to the different kinds of soil. The varieties of wheat, our agricultural reports tell us, from a few well-defined species have been increased until, by different modes of cultivation, and influence of soil and climate, more than two hundred varieties have been produced. So that from three well-defined species accepted by the botanist, all this great number of different varieties known to agriculturists have descended. Now, these, we are told, have resulted from influence derived from the soil, and the influence thus derived increases its value on some lands, as in the case of Minnesota's best soil, which ranks twenty-five percent above our best wheat producing land. Some soils, as this just referred to, are noted far and wide for producing good seed. The wheat grown in them produces more flour and the flour produces more bread.

Now, when we try such wheat or seed that is raised in other parts of our land which yield from fifty to seventy bushels per acre of most excellent quality, and each bushel averaging in weight above our own home production, we find that it degenerates and soon loses its quality in our soil, so that we have to go back to the original for a fresh supply and we receive no marked benefit. Why is not our wheat equal to that of our distant neighbor? The climate, we are told, has much to do with this, but the soil has far more. Our experimental farm and our own farming tell us that it is not the largest, plumpest and what we most commonly call the best seed, which brings us the greatest profit, unless other things are equal, for in the selection of seed, the nature of the soil upon which it is to be sown must be considered as well as that upon which it grew. As also with potatoes, the best seed wheats when properly analyzed by the chemist, are found to contain the different elements of which they are composed in about equal proportions, especially of starch and gluten, for that which contains the most gluten is preferred, notwithstanding it is more exhausting of nitrogen than soft wheats, but to produce a perfect wheat, or vegetation, the chemist says there should be no excess or deficiency, and we all know that seed must arrive at perfect maturity if perfect in quality. Hence, if we wish to grow any particular sort of wheat, and find by our preparation of the soil, or its original composition, that we produce a wheat in which the gluten and starch are in different proportions from that of the original, we may conclude that this is owing to more or less nitrogenous matter or vegetable humus in the soil, and by increasing the one or the other we may bring our wheat to have all the proportions of the original seed, just as we would improve our domestic animals for some deficiency of bone or muscle by feeding them bran, oats or clover, if for bone; or the primitive grains or grasses, if for other needs.

We ought to know, and, in fact, if we make a success in farm life, the chemist says we must know, that a certain proportion of albuminoids is essential to sustain life;and also that if the nitrogenous portion of food is all removed any animal will starve to death, although sugar, starch, etc., are in abundance; and just in that proportion to which the nitrogenous element falls short, to that extent we are starving our animals, no matter how much food they may consume. The same general principle holds good in the vegetable world, and is one of the reasons why so many of us fail in farm life. A plant can not live without mineral matter, our chemists tell us; it is very little but it is the part that costs. We have plenty of carbon in the air, but the mineral matter, we are told, is often so little available as to cause the plant to starve for want of it.

The stamina, ability, and I came near saying the purity, also, of the blood of the animal is taken into the stomach, for we all see how soon our stock will degenerate into scrubs when we withhold the proper food. It is said that "one ounce of blood is equal to one pound of bone," but if we starve our animals by forcing them to subsist upon grains and grasses which do not have in them the elements of nature to produce these substances, we then grow them deficient, and if so their offspring is like the parent, and is more susceptible to sprains and blemishes of all kinds that flesh is heir to. I once purchased some cattle which were in an almost famished condition for bone, all caused from a weakened condition of the phosphates in their feed and pasturage.

Some people are now wondering why it is that so many of our best producing animals of the horse species are so susceptible to blemishes and frequently have such large side bones, which were scarcely ever known when our horses were used to feeding upon the primitive grains and grasses in the early settlement of our state and counties. The sinews and bone of the Kentucky race horse are superior to an equal amount of the best manufactured steel in Europe or America, for no steam engine could course its way over our roads at the rate of thirty-five miles per hour and long endure such treatment. These animals are fed, watered and grazed upon soil which produces the correct articles of food ingredients, such as the phosphates and muscle forming properties. I once imported eight bushels of Kentucky blue grass seed in anticipation of getting like results in the fattening and muscle forming properties, but I found later on that it was the soil I should have imported instead of the seed. Sometimes our seed seems to do well at first and to be adapted to both soil and climate, but later on becomes degenerate and almost worthless. Now this may be, we are told, from other causes. It may be from inadequate fertilization or some unknown impregnation.

In importing plants or seeds of any kind attention should be given to the peculiarity of soil and climate under which they originated, as well as under those in which it is proposed to grow them.

Our reports tell us that the difference between winter and spring wheat arises entirely from the season in which they have usually been sown, for they can readily be converted, one into the other, by earlier or later sowing, greatly accelerating or retarding their growth. If a winter variety is caused to germinate slightly and then checked by exposure to a low temperature or freezing until it can be sown in the spring, it may be converted into a spring wheat. I have had some experience in this, but had not the patience and facilities that our experiment station has to give it a fair test. The difference in color between red and white wheat is, we are also told, to be attributed chiefly to the influence of the soil, white wheat gradually becoming darker, and ultimately red. in some stiff, wet soils, and red wheat losing its color, first becoming yellow and then white in rich mellow soils; the grain changing color sooner than the chaff and straw; hence we have red wheats with white chaff and white wheats with red chaff. So it would seem that each variety of grain is adapted to a specific climate and soil in which it grows perperfectly and where it does not degenerate when supplied with sufficient nourishment.

Now, in consideration of this, is it not far better for us to consider the origin of each variety of more importance than we have been accustomed to do in the selection of minor varieties here among us? The new varieties which we often get from our distant neighbors and which have done well for them in their peculiar soil or climate or cultivation, soon degenerate for us because they do not have the same environments as before. We find that some plants in some soils are very nutritious and healthful, which if raised in another soil and under different climatic influence are poisonous. In proof of this we will quote from one of our past Commissioners of Agriculture: "The leaves of the tea plant are harmless or but slightly stimulating in certain latitudes, while they become narcotic and unwholesome in others." Again he says: "It is not enough that it lives and sends out leaves; it must be able to produce flowers and seeds, and elaborate the peculiar secretions and products on which its qualities depend."

We often find that our neighbor has a much better flavored apple or melon than we raised on our farm, notwithstanding they are of the same varieties. While ours may be insipid and tasteless, his may be crisp and palatable. Now, why this difference, when the climate, environment and cultivation are so nearly equal? There is but one answer to this question, as I view it, and that is the soil from which it grew. On my trees the foliage and fruitage may have been permitted to grow to excess and extracted from the soil its better qualities and thus weakened it to the extent that it had not sufficient nourishment for perfecting the fruit. This is true of the much-talked of beet plant. In some soils it grows luxuriantly, but is comparatively worthless on account of having but little, if any, saccharine matter. Professor Hickman, of Wooster, said in a speech before the Horticultural Society, that the hard maple land is well adapted for beet culture, while the elm land and soft maple is not. Washington is now given out to us by the secretary of agriculture as well adapted to flax culture; "one ton of this fiber," he says, "is worth one hundred and fifty dollars more than the best that Ireland produces." The wool of Minnesota and Maine is worth more than that of Australia or any warm climate. Hence it is very important to us as farmers and agriculturists to know when a plant or animal may be suited to a particular climate.

Now, we all know that wheat, or any seed we raise, degenerates rapidly if the seed be sown year after year where it was produced. So, then, to remedy this evil we often exchange seed with our nieghbors, which, if raised upon different soil, but not widely different, is improved both in quality and quantity; but if grown in the same quality of soil and under like environment, we are but little if any benefited. We are told by agricultural reports that English grown seed sown in Ireland generally comes to maturity from ten days to two weeks earlier than the home grown seed, and that plants in general, from seed produced on a warm, sandy soil, will grow rapidly upon whatever soil the seed is sown; while seed produced upon a stiff, cold soil is late in germinating even in a warmer soil; also that in limestone soils, which are often heavy, wheat succeeds the best, for seeds which possess great flexibility are readily subject to influence of soil and climate. Now, such information as this, coming as it does from such good authority we might profit by when we exchange seed with a neighbor. It is true that in England they more frequently raise better crops than we do here, but this is from the fact that they are more careful in their selection of seed and are better cultivators of the soil, and we all know that when every attendant circumstance here is regarded as it should be, and every demand of the wheat plant fully supplied we raise as good crops as they do, or nearly so. Our agricultural reports tell us that if we as farmers wish to correct the prevailing errors of acclimatization we should understand the geography of plants, as well as the physiology and geology.

Every plant must have a certain amount of heat during a certain epoch of growth; it does not have to be within a certain duration of time, but may be received during a shorter term, as is the case with our hothouse plants. When the rays of the sun are focused upon a plant it hastens its growth. A child will mature earlier in a warm climate than in a cold one. This is noticeable in the Philippine Islands; some mature at the age of eleven years.

We as farmers (like those at our experiment station) are daily handling the tools and witnessing the operations of nature, for we are always in the way of observing what may be amiss or wanting in the old methods for making improvement, and if we are but close observers, with the light given us from our experiment stations and the knowledge gained from our state university, we should soon be masters of the situation and greatly benefitted as farmers. These stations are now our educators, our "watchmen upon the walls of agriculture," our schoolmasters, in the highest and best sense of that term.

Every farmer knows that the quantity of produce which may be obtained from a certain piece of land, all things being equal, varies according to the knowledge and skill we may employ in its cultivation. But every one of us does not know that skill is in reality merely the application of the rules of vegetable physiology to each particular plant or crop or grain. So that when we are successful in raising a bountiful harvest we do not always know whether we have rightly applied the rules or diagnosed our soil or climate properly.

In every part of our land we each and all are well supplied with the best of farm journals, and all standard publications are well patronized, and it is well for us it is so, for whatever is in our country must be studied by ourselves, because other lands will not investigate for us. Success can not be attained without the union of science and practical experience, and we should keep it before the world that Yankee blood, still curious to know, is coursing in our veins as in times past.

The soil has a vast deal more influence upon our grains, fruits, flowers and stock than the average farmer thinks or even knows. Climatic influence and the soil from which we grow the wheat and fruits that we subsist upon will change our natures, disposition, temper and stature. The wearing of black clothing in the rays of the summer sun will to a limited extent change our temperament. The black horses are not so useful in the beautiful Southland as the white ones, because black animals, like black soil, will absorb more heat, which is as valuable an ingredient in the latter as it is undesirable and unprofitable in the former. If one of us were to go to the Southland he would soon be of quite a different temperament than he is here in this climate. We are told by good authority that the English bulldog, the most savage, ill tempered and vindictive of all dogs when at home becomes transformed by a residence in Italy to quite a reasonable creature and in a few years, or generations rather, his descendants are without a trace of the original bulldog character, save in external formation and appearance.

Our wheat differs in the same field, and we find fault with the miller for a poor turnout of flour when it was the fault of the soil upon which it grew. We know that a very rich soil develops foliage rather than seed, and that the best seed is from good soil not excessively enriched.

As soon as we have our soil fully prepared for the crop by the use of our different farm implements, we are told by the chemists and professors at our experiment farms "that the soil begins at once to undo it, by endeavoring to regulate what is called specific gravity, the broken parts condense and the pores of the earth close up, and as the plants grow they require an increase of food in proportion to the increase of bulk, but on the contrary their artificial pasture, so to speak, gradually decreases. The earth is so unjust to her own offspring as to shut up her stores in proportion to their wants, that is, she gives them less nourishment when they should have more. So that we, to be benefitted, must force open her storehouse or magazine, with some modern farm implement." Our stock depreciates in value as our lands become exhausted of the phosphates which give it the foundation upon which it builds its frame. This fact is not well accepted by many who have not carefully considered the subject.

It is our duty and interest as farmers to know that we rob our land, as much of its phosphates, by the raising of young stock and driving it off at maturity, as we do, of nitrogen, in the constant raising of wheat and selling it. Through the deficiency of these important elements as ingredients, which go to make up the animal or the flour, our land is becoming comparatively worthless.

Professor Henry says that we do not exhaust our land when we sell the fat of animals, but when we sell their muscles, hides, horns and bones. We exhaust our land when we sell our milk, our cheese, our eggs, but not when we sell our butter. We exhaust our land more when we sell our hard wheats than when we sell our soft, for it contains more nitrogen; and more when we sell bran than when we sell flour. Starch is not so exhaustive. If this logic holds good, he says, a natural corollary would be that it is better economy to buy matured animals and fatten them for our markets than to raise them on the farm. A mature animal will not remove the phosphates from the earth like a growing one. Its weight will be increased by the laying on of fat rather than bone and muscle. Professor Henry says, relative to plants, that the wood in a tree and the starch in a pudding are about the same chemically, and yet you would claim them, according to your taste, to be quite different. So also the red pepper is not much different in chemical composition from something not at all biting or burning.

If you give a man bricks he says he can make any kind of a house, but give a plant food and it will not make any kind of a plant, but a certain kind of a plant. It would simplify farming most wonderfully, then, if we knew and applied such food as would meet the constant waste extracted from the soil. The physician can tell at a glance at his patient the rapid destructive nature of disease and the premonitory hastening of dissolution. The phrenologist can tell the susceptibilities of our nature and what we are most in need of as appliances for future growth and usefulness.

Now, while me may not be so well versed in our vocation as farmers, still we should be able to read the handwriting of our soil by the growth of vegetation, by the timber, the streams and even the very stones we tread on, for all unite in telling us the varied composition of our land.

Mr. O. E. Bradfute: The president has asked me to take the chair for a few moments as he must necessarily be absent for a few minutes. We now have a few minutes for the discussion of this question if there is anyone who has anything to say upon it. If there is no one we will pass on to the next subject, which is an adddress by Henry S. Kelley, of Geneva, Ohio.

THE CARE OF FARM ANIMALS.

This subject is of vital importance to every farmer in Ohio, and is one that is sadly neglected by many who make miserable the lives of the different domestic animals of which they are possessed. It is with sorrow that we read, after there has been an unusually severe storm, of the percent of live stock that is lost in the great West; the fact of the terrible suffering of those that live is seldom commented on.

In caring for stock successfully there are a few things absolutely necessary. First, animals that are good specimens of their class; second, plenty and variety of feed; third, comfortable quarters; fourth, water in abundant supply and pure; fifth, an intelligent, thoughtful person in charge.

How much stock have you on your farm of which you are ashamed, and which you are keeping at a loss? In August, if you find that you have animals that are not thriving, is the time to put them in condition for profitable wintering. Select them out from the others and give them the run of the meadow or some pasture that is better than the ordinary, and commence giving them grain, as stock that is out of condition will not get off feed and will seem to get a new lease of life if green food forms the basis of the ration; the old saying, "An animal well summered is half wintered" is absolutely true, for a thriving animal will eat and digest almost anything.

Good stock does not necessarily mean stock with long pedigree, but that which is adapted to the use to which you put it, and which will pay in dollars and cents for the feed and care you give it.

When you first bring your animals into winter quarters, do not make the mistake of giving them straw or poor hay; be sure to give them the best you have, second-crop clover or something of that kind. When they become accustomed to winter quarters and the weather becomes settled, then you may give such feed as you may have to dispose of.

The time has come when every thoughful stock farmer will aim to feed all that is grown on the farm, and will aim to grow all that is fed; that is, he will grow some special crop to sell with which to balance the ration, so that all cornstalks will be consumed at a profit to the owner, and the fertility of the farm constantly increased. In traveling over the State wherever you see a farm on which stock is the chief source of income, you are sure to see thrift and prosperity.

When the new corn and oats are first harvested do not try to fatten the animals in one day, but commence gradually and increase as they will bear it. There can be no hard and fast rule as to the amount to feed. With milch cows, I think it safe to feed all they will eat, but it is better and they will eat more, if they clean the feed box or manger to the last thing that is of value. When you feed animals so that they waste their feed it is almost as bad as feeding too little. Do not feed cornstalks, corn meal and timothy hay and expect good results. If you are feeding cornstalks freely, mix bran with corn meal and give some clover hay. I am satisfied that in feeding corn or corn meal without bran, oil meal, gluten feed or clover hay, when cornstalks are depended on for fodder, the grain is almost wasted. If corn must be the grain, give clover hay once a day.

In Ohio the place to feed is under cover, and feed of all kinds should be kept under shelter. You can feed the same every day whatever the weather, and there is less loss of fertility, of course, when the conditions are just right. Stock will do nicely out of doors in fair weather, but when there comes a hard storm or snow, or rain, which is worse, the stock hardly holds its own. How are your barnyards? Is the mud knee deep? Have you ever drawn gravel and tried to make it better? If not, why not? In summer, to escape flies, cattle will some times go in mud and water, but in winter it is very different. Children like to play in mud and water in summer, but if they are allowed to do so in winter serious results are apt to follow. Barns should be so constructed that they can be ventilated and the stables should have glass windows, so as to be as light as out of doors. Be sure to have the light shine into the manger, and have the mangers so arranged as to be cleaned easily; then see to it that they are kept clean. I have seen new feed piled upon old feed day after day, and then people wonder why their stock does not thrive better.

I do not make a practice of keeping salt before stock all the time, but give a little at a time and often; if you see an inclination to leave a little feed, give some salt and they generally will clean the manger. Do not put salt into feed so they will have to eat it, as this will sometimes cause serious results.

The water supply should be abundant, pure and easy of access, as when very cold storms come the stock will go without if they have far to go for drink. Almost anyone can have water in wells at barns in winter, when it would be impossible to get a supply there in summer. The number of times which stock should be watered is a disputed question. I think twice each day in winter and three times in summer.

The person in charge should have at all times the well being and comfort of his stock constantly on his mind, as, with the close competition in every branch of stock farming, it is the little things that count, and often make the difference between profit and loss. For instance, a few years ago I bought a pair of colts and developed them, worked them on the farm, and sold them for four hundred dollars. My neighbor bought a colt of the same breeding and in every way as good, and he has never seen the day when he could realize one hundred dollars for it. Just the matter of a little extra care made the difference.

I do not like the idea of keeping stock confined in the stable all winter, especially breeding stock. I think it should have some exercise, and with sheep the stable should not be too warm, but dry. Sheep will do well in a warm stable, but should not be allowed to run out and in, as that is apt to cause colds and catarrh. Every ewe over two years of age should raise a lamb, and if she fails to do this, so far are you from being a successful flock owner.

Cows have always paid well and have been a sure source of income. My grandfather became a bankrupt in 1842 by signing for a friend. He bought the best farm in our town and paid for it in seven years with the product of twenty-five cows, these cows making six hundred pounds of cured cheese each year for every cow kept. The cheese was all kept till fall and sold at one time, so you see they were good cows and well cared for. There is an opening for anyone to raise cattle in Ohio, and keep some of the money at home that is going to the far West. In our town a man shipped in last year forty thousand dollars' worth of cattle and twenty thousand dollars worth of hogs. He tells me that there is at least two hundred and twenty-five thousand dollars worth of meat brought into our county of Ashtabula each year, all of which might be raised and bred here if the farmers were only so disposed, as there are few farms that are run to their full capacity.

The horses used on the farms should be able to perform the work asked of them. They should be fed and watered three times each day, never given more coarse feed than they will consume with avidity, and the grain should also be eaten with that eagerness which shows relish. The water may be given an hour after eating grain, if not more than two or three gallons are given at a time. This I suppose will be disputed from a physiological standpoint, but in practice I find it works well. At noon if working they should be watered when brought into the stable if they are not overheated and exhausted; then it will be well to exercise caution by giving in small quantities. I do not like the idea of grooming a horse when he is eating grain, especially if it makes him restless; better let him eat in peace.

The farmer who does not have box stalls in which he can sometimes turn stock is away behind the times, and the farmer who has the care of stock and can not tell when they are thriving, and when they are out of condition, and does not know of some simple remedies and how to administer them himself, would better go into some other business.

Do not be afraid of getting the animals too fat. How many in your lifetime have you owned that you are satisfied would have had more value if they had carried less flesh? You probably have some of the other kind that you would rather not put on exhibition. If you have stock to dispose of, put it in condition and keep it so until sold. If you have unsound animals or those that are faulty do not make the mistake of trying to get a big price, but let them go at the first opportunity, for inferior stock never pays and is a source of annoyance to the owner.

In keeping stock of all kinds we must bear in mind one thing, which I will try to illustrate by the following: Years ago it was customary for school teachers to board around, and one night the teacher in a certain school was scarcely seated at the table when he was asked, "How long do you board for a scholar." He replied, "That depends on circumstances." After a pause he was asked what were the circumstances, and he said if the board was not good he stayed long enough to make it good.

The Chairman: We have just listened to a very practical paper. No doubt many of you have experiences to add to this and we will spend just a few moments in discussing this paper.

Mr. A. Shirer: I hope nobody in the grand old state of Ohio will travel through the state with a kodak and take any pictures and present them to some great assemblage at the close of the present century, for there is still to be seen in this golden age cows with one end stuck in a straw stack and the other end out through a regular blizzard, cows drawn up like a hook and sheep all huddled together .Now, I am surprised that people in the state of Ohio are still practicing that old custom. We must remember, Mr. Chairman, and here is the mission of the farmers' institutes—they are teaching that that is not the way to raise good, healthy stock, turn them out of doors to face the elements they come in contact with. So I hope nobody will make these pictures and preserve them until 1999 and put them on exhibition. Certainly it would be no honor to us that live today to have such pictures presented.

Mr. S. H. Todd: I think the great danger, possibly, today with the handling of stock on the farm is that we are keeping our animals too long. We keep our hogs too long before we market them. We keep our animals until they are too old. We must remember that if we would have success, as soon as an animal, whether it is a feeding animal or a breeding animal, reaches its constitutional limit of development it goes down hill, and that "down hill" will be apparent on the offspring.

Mr. Lowell Roudebush: Just one word along the line of ventilation. We are going from one extreme to the other, from the old to the new, and it is very important that with the modern farm buildings for our live stock we should have plenty of pure air.

Mr. Jones, Delaware: I would like to ask Mr. Todd if he does not think in some cases that this theory of early maturity is carried to excess?

Mr. Todd: That is a question that would require a good deal of time to discuss. We possibly make mistakes along that line, but I do not think there is any danger as we are observing the general trend of the farmer who is keeping stock.

The Chairman: The time has come to adjourn this session. The president has left here on the desk his selection of the committees that are to be appointed. He has selected on the committee on nominations: F. A. Derthick, C. G. Williams, R. H. Wallace, and S. H. Ellis, and on the committee on resolutions, S. H. Todd, John Begg, O. E. Bradfute, Dr. W. O. Thompson and Lowell Roudebush. These committees will please meet and be ready to report at the call of the president.

And thereupon the Institute recessed until two o'clock P. M.

AFTERNOON SESSION.

TUESDAY.

Promptly at two o'clock P. M. President Farnsworth called the Institute together, pursuant to adjournment, and introduced the Otterbein Male Quartette, who entertained the audience with music.

Thereupon the president introduced Professor W. J. Green, of the Ohio Agricultural Experiment Station, who delivered an address upon "Garden Irrigation," as follows:

Mr. President:

The rainfall, when evenly distributed throughout the season, is sufficient for most crops grown in this State, but there are a few garden crops which need more water than falls in the form of rain during the summertime. Owing to uneven distribution during the growing season nearly all crops suffer more or less every year for want of water. In the case of farm crops the investment in labor and fertilizers is not large and the loss is less serious than with garden crops where these items are much greater. When one must make an investment in labor, seed and fertilizer before the crop is ready to be harvested, often exceeding the value of the land, all risks need to be minimized.

The cost of growing an acre of celery ranges from one hundred to three hundred dollars per acre up to the time when it is ready for market. An acre of onions costs from one hundred to two hundred dollars for the same period. A long list of vegetables and fruits might be named where cost of production exceeds fifty dollars per acre. Not a few could be named, the gross product of which often exceeds five hundred dollars per acre, and when high prices and good crops coincide that sum may be doubled or trebled. It seldom happens, however, that such profits are realized. More frequently the cost of production nearly equals the selling price. Numerous causes contribute to this result. Leaving out of consideration bad management, a factor which is usually ignored, there are insects, fungi, bacteria, frosts, floods, droughts, low prices, etc. Although not complete the list is long enough to show that there is indeed need of reducing the risks to capital invested in gardening. If we liken these elements of danger to an army then we need to know the strategic point of attack. By providing against drought, we eliminate the greatest danger of all and lessen the effect of some of the other evils. When plants are given sufficient food and water and a vigorous growth maintained, they are better able to resist the attacks of insects and the encroachments of disease. Then, too, good crops reduce the cost of production per unit, and enable the grower to meet low prices. Food without water is insufficient; nearly all the labor of caring for crops is thrown away if the water supply is scanty.

These facts have long been known, but how to obtain a supply of water, and how to utilize it when secured, are problems which have waited a long time for solution, and it would be too much to say that we are even now in possession of full knowledge on the subject. After some experimenting and considerable inquiry the conviction has come to my mind that we can not follow the methods of irrigation practiced in the arid regions. A few springs and spring brooks may be utilized, either with or without storage dams, as may be necessary, but the area of land which may be brought under water in this manner is very limited. To attempt to divert our streams would be to encounter difficulties which we could not overcome.

Irrigation by flooding implies soaking of the ground and requires large quantities of water. In a climate where the rainfall is almost sufficient to carry growing crops through the season it is hazardous to soak the soil at any time when a crop is on the land, with the possible exception of celery. Too much water is detrimental to most crops, and this condition may occur when a heavy rain follows a thorough watering. Watering by flooding is of not very much avail unless the soil is pretty thoroughly soaked, and to apply a small amount of water in this manner, and distribute it evenly, is a difficult matter. Other objections might be urged against irrigation by flooding, but it is sufficient to say that in this part of the country it can be practiced to a limited extent only, and it certainly is not the best method.

Sub-irrigation is fascinating to many and I must confess to have been led away by its charms myself. My first effort was to lay drain tile a foot or more underneath the surface of the ground and introduce the water at one end of the row of tile. Theoretically the plan seemed possible, but in practice the water refused to stop where it was wanted and nearly all ran out of the lower end of the tile. Later experience has shown that strips of tin shoved into the joints of the tile, at intervals of eight or ten feet, will check the flow wherever needed. The next experiment was to lay the tile on a level, no matter what unevenness there might be in the surface of the soil. It was found that not much water reached the surface of the soil if the tile was more than a foot deep, and the nearer the surface the better, also that the distance between rows of tile should be from three to six feet, depending upon the kind of soil. It is evident that this method is impracticable where horse cultivation is practiced, besides it is unduly expensive, because of the cost of tile and the difficulty of laying them so as to work effectively. This method of watering may be applied, however, advantageously in certain cases. In growing late celery there is no method with which I am familiar that has so many advantages as watering by sub-irrigation. The celery plants are set closely together in beds, five or six feet wide, and the watering accomplished by means of two rows of tile laid lengthwise of the bed. The rows are one foot apart, running crosswise the bed, and the plants are six inches apart in the rows. The tile is common 3-inch drain tile placed in position before the plants are set. It is not sunk in the soil more than enough to cover it, and will answer just as well if simply imbedded in the surface of the soil. If the surface of the bed is level nothing more is required than to place the tile with care so that the water will flow along its entire length. Both ends of the rows of tile are closed and an opening made to admit the water. In case there is a slope to the bed means must be taken to check the too rapid flow of water to the lower ends of the rows of tile.

Strips of tin may be inserted in the joints, at intervals, along the lines of tile so as to hold the water back, causing it to flow out at the joints and enter the soil. The quantity of water and the slope of the bed must determine the distance apart at which the tins are to be placed. This can be learned by trial, only. If the tile are imbedded in the soil simply, it is easier to see and regulate the flow of water than if placed deeper. The plan is especially applicable to the family garden, but market gardeners have found that it has a practical feature which may be applied in their business. About all of the losses incident to keeping celery over winter, such as freezing, heating, rotting, wilting and destruction by mice may be prevented by earthing the celery bed to the top before cold weather comes and then covering with leaves or straw. The celery is found to be in perfect condition whenever wanted from November to April. The same method of watering may be used for other garden crops where hand culture is practiced. It is especially adapted to watering flower and foliage beds, of almost any dimensions. As a rule, the line of tile should be about two feet apart, but the distance may be greater in some cases.

In most large market gardens irrigation is considered necessary. Sometimes the water is taken from the city water mains, but in the East private watering plants are quite common. In most cases the water is pumped from streams or wells with steam or gasoline engines. Windmills are often used in auxiliary power, but are seldom depended upon solely. Storage tanks, or reservoirs, are sometimes employed, but not always. Frequently the water is pumped direct upon the soil where the crops are growing. The manner of distribution varies, and just here is the parting of the ways to success or failure. Even distribution and low cost are essential features. The difficulty of reducing the latter item has kept many from attempting to irrigate their garden crops. A common method is to carry the water to different parts of the field through iron pipes, laid underground. Distribution is sometimes effected by means of a hose, but the process is unduly expensive, even with cheap labor. Lawn sprinklers are often attached to the end of the hose, and, in some cases, a series of lawn sprinklers are arranged at intervals along gas pipe. The best example of this plan that has come under my notice is in successful operation near Cleveland, O. In this case about an acre of celery bed is covered with iron pipes, eight feet above ground, and lawn sprinklers placed twenty-five feet apart each way. It is not practicable in this case to sprinkle the entire bed at once, but the time required in shifting the water from one part of the bed to another is insignificant, and the cost of irrigating the entire bed is merely nominal.

Celery is planted six inches by two feet apart and two crops are grown each

season, making a total of more than eighty thousand plants. The surface of the soil is mulched with manure which supplies fertility, to be carried down to the roots by the water. Still closer planting is practiced by some gardeners, but in no case could the crop be brought to perfection without a sufficient supply of water as well as fertilizers. The possibilities of an acre under such intensive culture seem almost incredible. In the same garden cauliflower is irrigated in a different manner because sprinkling might be injurious to this crop at the time of heading. A hose about three inches in diameter is made of twelve ounce ducking. This is laid between the rows and water introduced under pressure, and it spurts out at all points through the meshes of the ducking. It is not necessary that the hose should lie on a level, as the water may be carried over considerable elevations and across depressions. Shifting the hose consumes some time, but far less than if a man were required to give his whole attention to it.

A less expensive plan, and one which admits of greater possibilities has been devised by Mr. C. W. Skinner, of Troy, O., and is in operation on fourteen acres. Iron gas pipes, several hundred feet in length, are placed at intervals of sixty feet apart over the ground to be irrigated. The height above the soil may be any distance desired, but about four feet has been adopted by the inventor as a convenient distance. The size of the pipe required depends upon the length. For short lengths one-inch pipe is sufficient, but it is customary to start with larger pipe, reducing the size toward the farther end. At the end where the water enters, there must be sufficient capacity of pipe to slightly exceed the combined capacity of the outlets.

The water enters the pipes direct from the pump, under pressure of thirty to forty pounds, and escapes through outlets placed a foot apart along the pipe. To prevent rusting, brass vents are screwed into the iron pipe. The holes in these vents are about one thirty-second of an inch in diameter. When the water is turned into the pipes it comes from the vents in small streams, rising thirty feet or more into the air, falling again to the ground like a gentle rain.

With a pipe wrench the whole line of pipe is easily turned to the right or left and the streams of water thrown at any angle desired. When there is no wind the streams of water will reach a distance of thirty feet on either side, but a strong wind may carry it sixty feet, or to the next line of pipe. A light breeze shifts the streams so that the entire surface of the ground is covered evenly. Should it be desired to water one or more rows of vegetables or fruits, and not the entire area, it can be done with thoroughness and precision.

This method is cheaper and incomparably better than by flooding or watering with a hose held in the hand. The cost is but little more than the cost of pumping, which need not be more than one cent for one thousand gallons. A two and one-half horse power gasoline engine will raise, from a twenty foot well, sufficient water in one day to cover an acre one inch deep. If the entire time of one man for this period were required the cost for both man and engine would not exceed two dollars for each acre irrigated.

It does not require the full time of a man, however, to irrigate a single acre. The actual cost of covering one acre one inch deep with water from a stream, pond or shallow well need not exceed fifty cents. An inch of water is equivalent to a rainfall which will give the surface of the ground a moderate soaking. Crops will not suffer greatly with one inch of rainfall per week, although more is actually required by most garden vegetables, to have them do their best. When sprinkled in this manner the soil is not washed, as with a hose, nor is it compacted, as by flooding, and the quantity is uniform for the whole area, or it may be varied for different parts of the field, as desired.

Inequalities of the surface do not affect or hinder in this method of watering,

as by flooding, nor are some parts of the field left so wet as to delay cultivation so long that other parts suffer.

The cost of piping a field for irrigating by this method is about fifty dollars per acre, exclusive of engine and pump. For garden operations this is not excessive, especially when it is a fact that the increased returns often exceed, the first season, the entire outlay for pipes, pump and engine. This estimate is based upon more than an acre under irrigation, however, and for other systems, where the quantity of pipe is a little less. There are other applications of the Skinner system which are worthy of notice. Crops may be sprayed very expeditiously by this method. The pipes are simply filled with Bordeaux mixture, or with some poison for insects, as the case may be, the water turned on and the work is done in less time than it would take to get a spray cart into a field. An acre can be sprayed in two or three minutes. For some plants the method would be somewhat wasteful, but on large plants the work could be as thoroughly and as well done as with a sprayer.

The most unique application of the system is that of covering celery and other plants with ice for winter protection. In the case of celery the plants are first banked with earth to the tops, and then with straw, and lastly with a little manure. When freezing weather comes the celery beds are sprinkled as though for irrigation, and the water, freezing as it falls, covers the bed with a layer of ice. Under a mantle of ice the celery is in frost-proof cold storage. The ice blanket may be covered with straw to preserve it, or may be renewed as often as the weather will permit. The method followed in planting is the bed method, above described, but the tile for sub-irrigation is not used. This plan of planting has very decided advantages when combined with storage under ice. Doubtless the same method might be followed advantageously in the storage of vegetables in pits. It is quite possible, also that strawberry plants might be retarded by covering the bed with ice, thus prolonging the season by delaying the time of ripening.

The inventor of the system uses a steam pump and by condensing the steam he can warm the water as it leaves the pump to about seventy degrees. When frost is imminent he can protect plants by spraying them with warm water late in the night and early in the morning. Experiments in this line have not been carried very far, but it seems probable that light frosts, at least, may be warded off in this manner.

In conclusion it may be said that this system of watering seems to meet requirements better than any other. The cost does not preclude its adoption, even on a small scale. Its simplicity, reliability and general adaptability appeal to vegetable and fruit growers. It makes irrigation in nearly all gardens possible. It increases the possibilities of the soil to a wonderful extent and will place the art of gardening almost upon the plane of certainty, minimizing the risks to a degree almost unthought of.

The President: Now, gentlemen, this subject is before you for discussion.

Mr. Martel: Mr. President, many years ago I tried irrigation, and my plan was to pump the water from a stream onto potatoes, but my pump would only throw 160 gallons of water per minute and the difficulty that I encountered was—the field was slightly inclined—that the water would run down the furrows, and I found that the water would only run a rod or two down the furrows until it would soak away, and the first thing I knew I had pumped the stream dry. Of course it helped the potatoes a great deal but I could not distribute it; then I got a three-inch iron pipe in order to carry it down the furrows, and then I got duck and made a hose, and made holes in it, and then painted it white, and this carried the water down. Of course I didn't have a very heavy pressure, but it carried the water any distance without losing much water. It was an impracticable thing with me because I did not have water enough. It took more water than I had calculated on. But I now have an elevated cistern that I pump water into for my cattle and hogs, and I simply turn the hose and let water run onto my ground. That is about the only irrigation I am following now.

Mr. Shirer: You know years ago capillary attraction was something that most every institute director hid behind, and I have always had some doubts about that capillary attraction theory. I have discovered that capillary attraction irrigates mighty slowly. I believe it is gravitation. Now, Professor, I do not know how high capillary attraction will go. The only thing I can find out is they say that the finer the pores the higher it will go. I thought I would experiment a little and so I took a stove pipe and filled it with the best sandy loam, put that down in an iron kettle and filled it with water, and to my surprise it took more than a month for capillary attraction to bring that water up the length of one section of an ordinary stove pipe. Then I added another section of stove pipe and filled it with loam and it never did get up to the top of that. Now, Professor, I wish you would give us some idea how high capillary attraction will carry water.

Professor W. J. Green: I said I was not able to get it a foot high. There were no indications of the water on the surface at all.

Mr. Shirer: Is it true, Professor Green, that all agricultural plants take in their moisture exclusively through the roots?

Professor Green: Professor Selby is here, and he can probably answer that question.

The President: Is Professor Selby in the room?

Mr. Shirer: I want to know if any goes through the leaves?

Professor Selby: It is understood that it is taken up by the roots altogether.

The President: The next number on the program is by Mr. F. L. Allen, of Kinsman, Ohio, on "The American Farmer." But I understand that Mr. Allen is sick with the grip, and I will therefore introduce Mr. A. R. Phillips, of Chagrin Falls, Ohio, who will talk to us upon the Maple Sugar Industry of Ohio.

Mr. Chairman, Ladies and Gentlemen:

I wish to talk to you a little while this morning upon the subject of the maple sugar industry, and impress upon you something of the prominence that it really deserves. During the closing years of the century that we have just passed we have had a grand summing up of all the great industries of the nation, shown from their humble beginning right up to the close of the century. The achievements in art and literature and science, and discoveries in commerce and agriculture, every one, no matter how insignificant, seems to have had its full share of attention, traced from its beginning up to the grand results at the close of the century, with the single exception, so far as I know, of the sweetest of them all, the maple sugar industry. And one year ago, I am creditably informed that on this platform where I now stand gentlemen of prominence in the government were summing up the great agricultural interests of the state and never so much as made mention of this industry. Now we up in the Western Reserve, and more especially in Geauga County, feel as if we were in a sort of a cloud, and want to emerge from the obscurity in which we are enveloped, and brush away the clouds and so I will tell you something of the industry of which we are proud.

This industry is a sort of anomalous one among the agriculturists of the state in many respects for it comes in a season of the year when all other agricultural industries are practically at a rest. It is, in fact, entirely dependent upon weather conditions. It comes when there are more kinds of weather humbled and jumbled into the twenty-four hours than any other season of the year, and it makes no difference what the weather conditions may be, favorable or unfavorable for man or beast, you must go forth and reap the harvest at such times or you lose it. It is in the heat and the cold, alternate freezing and thawing, the blizzard and the warmth, I say it is in such conditions as these that the sweet child of the forest is born.

But we have made progress in this industry, as has been made in every other agricultural industry, and it is concerning this progress, and also concerning its conditions at the present time, that I wish to speak for the brief time given me this afternoon.

Let me draw a picture of the conditions that prevailed in the early times and those which obtain now, and by comparison see if we have not made progress as has been the case in other lines. When the pioneer came in from the eastern states especially into the northern portion of this state, came into the forests and built his cabin and went about the establishment of a home there, he found himself almost unsupplied with means by which to go forth and wrest subsistence from nature. He brought with him a few tools that were necessary, and the chief tool was his axe. And he also brought with him the cauldron kettle. There is a romantic fascination connected with the early sugar making times that is fraught with interest. He went forth empty handed and manufactured that product from nature itself, with none of the means with which we are supplied at the present time.

Let me take up the different points or a portion of them that are necessary in its manufacture. He took his axe and went forth to tap the tree. He made a rude "V" shaped hack or wound in the tree three or four inches in length, the full length of the blade of the axe. Beneath that with his gouge he made another incision and inserted in that a spout that led the sap away to the receptacle that he provided for it. And from that rude "V" shaped hack that was so injurious to the tree, up to the three-eighths inch bit by which we make the incision today there is a succession of steps in the line of advancement that are to be compared with the steps of advancement in any industry. He had no bucket then, but again he went forth with his axe and hewed down a butternut or a cherry tree, and cut out a huge slab three feet long and a foot through, and this he hollowed out and set beneath the spout, and that was the first receptacle that was provided. Some of these are to be found today. We gathered some of them up and stored them away as relics of the early sugar-making times. And from that old trough up to the modern galvanized tin bucket is another succession of steps in the line of advancement.

But still of more interest than any of these is the methods he employed, compared with what we use today; the reduction of that sap, the materials used, the cauldron kettle, swinging by its two ears, and the pole on which it hung, suspended on two posts ten or twelve feet apart, under which he built his fire, and in which he boiled it down. Next he learned to set this iron kettle in an oven banked up with mortar, and by this means he saved a good deal of heat that went to waste when it swung from a pole. The next step was an important one, and it covered a scientific fact that he was not slow to recognize, but it came a good deal later, and that was the plan whereby there was secured a constant circulation of the sap from the front to the rear, and even beyond that to the reduction of the sap by means of a superheating process, which represents the most advanced step that has been taken in the industry, and we are yet looking for something beyond that. Somebody has said: "What about electricity?" We are looking to that also. We sometimes thought me might apply the old principle that we studied in our school books, that by the passage of a current of electricity through a body of water it resolves it into gases. Why would it not act the same way upon the sap? No one has tried it that I am aware of. But between these two extremes concerning those sugar making days and that which obtains at the present time I say there is a succession of steps, that is analogous to the succession of steps in advancement in all other agricultural industries, like the harvesting machinery, from the old sickle to the cradle, the dropper, the self-rake and the modern binder of today. I say these steps that we have taken are comparable to those.

But before I speak of the magnitude of the industry at the present time I want to call your attention to the habitat of the maple tree. The natural habitat of the maple tree is not a wide one. It is confined to the North American continent and a very limited portion of that, and entirely to the north temperate zone. I have here a sectional map of the United States in different colors, and it is designed to show where the maple tree grows naturally, and also to show the amount of the production in the United States. It extends from the lower basin of the St. Lawrence on the Atlantic coast down into Tennessee and on westward, but it scarcely ever goes across the Mississippi river. It seemed as though those winged seeds could not get across there, or if they could get across, they could not find the congenial soil there that is necessary. The green upon the map shows where the least amount is produced, and the basis of production is estimated per thousand acres by the United States Department of Agriculture. Here there is less than one hundred pounds per thousand acres; the next, which is this yellowish brown, shows the next greater amount of production, which is only from two to three hundred pounds per thousand acres, while the blue represents a thousand to two thousand pounds per thousand acres. And the next highest is the dark brown. It is found in very few places upon this map, while the bright red, of which you see only three patches is confined the northeastern part of Ohio, to Vermont and a very small place in Canada. Here the intensity of production is equal to three thousand pounds or more per thousand acres. While it is true that it averages that in some of these localities, this portion of Ohio which is shown here exceeds that by more than double. It is the most intense production in that section which covers the entire area of Geauga county, for which I want to speak a little more definitely a little further on. Here the production is most intense, more so than anywhere else in the United States, and for that matter in Canada or the rest of the world.

Now as to the amount produced within the United States, so that we may understand more fully the position of Ohio. I shall not trouble you with detailed statistics concerning this, but I want to express to you in round numbers a few figures concerning it.

In round numbers the production for the United States is about thirty to thirty-five million pounds of sugar, and about three to five million gallons of syrup, and by using the multiple of 7½ for the syrup, we have for the United States from thirty-three to thirty-five million pounds per year. That does not cut very much of a figure beside the total amount of sugar of commercial varieties consumed in the United States. Another thing, it is strange that maple sugar and commercial sugar do not enter into competition with each other at all. The position that Ohio occupies in the United States is third, but were the production carried on all over the state as it is in the northern part it would be first. Vermont stands first. There is no part of Vermont of any size where it is not made. In Ohio there is only a comparatively small area where the industry is carried on to any great extent. The amount produced in Ohio varies from eight to ten million pounds, but the figures become reversed when we begin to speak of the amount of syrup and the amount of sugar manufactured. There is more syrup manufactured in Ohio than there are pounds of sugar. We produce a little less than a million pounds of sugar, about seven or eight hundred thousand pounds, and in syrup we produce over nine hundred thousand or nearly a million gallons of syrup. That is, with this mulutiple of 7½ it would give us from nine to twelve million pounds of sugar for the state.

And now I ought to say something concerning Geauga county on this matter. I shall not do it in any boasting sense, but I shall speak truthfully concerning the matter. Geauga county wins out in every class of this product which may be mentioned, in point of production, in amount, and number of trees. Here the intensity of production is above six thousand pounds per thousand acres. Geauga county is a unique county in many respects. It is noted in many other respects besides the total amount of sugar. One is that there are no saloons within the county. I think that is the only county in the state about which that can be truthfully said. Besides that we have the smallest population of any county in the state. Now you might think it strange that I boast of that, but I say this, as we have no large cities within the limits of Geauga county to corrupt and throw the burden of taxation upon the farmers and the rural districts. Besides that we have the best telephonic communication of any county of the state. Every farmer in Geauga county can communicate with any other farmer in the sixteen townships without leaving his house and without special messenger. There are more rural telephone companies than in any other county, and this gives us a sort of relief to the bugbear of farm life, and it brings us right in touch with the whole civilization just as though we were living right in the centre of the earth, and it gives to the ladies of the households of the farms an extended privilege, and we would not take that privilege away from them. They ought to have it and it gives a relief to them, and if you want to get a line during the day time you may have to wait a long time, for you will find the women having a good solid visit over the telephone over family and domestic matters.

The statistics for Geauga county vary so much and are so unreliable for the amount that that county produced that I am distrustful of them even to quote them. But last year we produced 134,000 pounds of sugar and 168,000 gallons of syrup, equivalent to about 1,200,000 pounds placed all as sugar. But I know the figures are not correct. The most accurate figures we have are concerning the number of trees tapped. Every farmer knows just about how many trees he has, because he knows how many buckets he has, as he has to figure that up when the assessor comes around in the spring, and there are considerable over half a million, 611,000, trees at the present time. Its nearest competitor is Portage county, which has a little more than 357,000 trees against 611,000. There are but sixteen townships in Geauga county, hence it is a very small county, and the production within these same sixteen townships is remarkably intense, figuring out something like seven to eight thousand pounds per thousand acres. There is Bainbridge, the southwestern corner of that county, that taps over 50,000 trees. Auburn taps 66,000 trees; Newbury, in the northeast of that county, 64,000; others 47,000, 30,000 and 38,000. So that we have a total amount in Geauga county alone that produces from a million and a half to two million pounds; and although we were credited last year with 134,000 pounds of sugar, I know of two wholesale buyers in the county reported to me that they purchased more than that amount, and we have half a dozen other buyers and a whole lot of smaller ones.

Now, to the student of botany many beautiful and wonderful processes unfold themselves as he penetrates into the laws of the vegetable kingdom. The circulation of the sap in the tree, which is analogous to the circulation of the blood in the human body, is a wonderful thing. Let me follow it out as it exists in the maple tree, and it is similar in all of them. The roots of the tree reach down into the earth and take up into solution all the solid elements that are required in the root and the body of the tree. At the first warm touch of the springtime sun the sap begins to ascend. It climbs from cell to cell impelled by that powerful law of capillary attraction, and although that is the only power we can see that causes the sap to move upward, still it does not account for it entirely. Some law of life we do not understand impels it to go still higher than capillary attraction would carry it. It climbs from cell to cell; it rises impelled by those laws to the very outposts of the tree, the bud and the embryo that was formed at the close of the last season's growth, and there by the touch of the springtime sun the buds begin to unfold and the tree becomes a living, sentient being. And here we see the close connection there is between the animal and the vegetable kingdoms, and that one becomes the complement of the other. The whole animal kingdom breathing the air, keeping the oxygen and throwing off the carbonic acid gas; the whole vegetable kingdom breathes in the air, retaining the carbonic acid gas and exhaling the oxygen. That is not exactly the process that obtains, for there are some portions of the carbonic acid gas retained, some are exhaled. One is the complement of the other, and thus we see the balance is maintained constantly.

Now, at this point another illustration. The forces that lifted it up to the leaf seem to have released their grasp and gravitation seems to take hold and pull it down, but not by the same course. Now it goes down through that portion of the tree near the bark. It is a mucilaginous substance, and is supposed to form the outer ring or growth, the concentric circles which you see when the tree is cut down, and by which we think we can determine the age of the tree, but we can only determine the age approximately. There is nothing exact about that, for many of the younger trees in their younger years of growth represent about three of those annular rings for a single year, and occasionally there is a tree that does not have so many rings of annular growth as it is years of age.

Then there is another point about the flow of the maple sap that I want to bring out, and that is this, that as the tree does not use all of the sap every year it seeks to have a bank account in store for the next season. It must have it or it could not begin the processes of the next year without it had something to start with. Every kernel and every nut is provided by that. And the deeper we penetrate into these things the more are we led to exclaim: "Great and marvelous are Thy works, Oh Lord of hosts; in wisdom hast Thou made them all." The pressure of the sap, too, is mysterious—the force within the tree which compels it to go upward. The pressure of the cells to throw it outward is intense, more than we would be apt to think, excepting as we know from scientific experiment just what it is. Steam gauges and mercurial gauges have been fastened to the tree and the pressure of the sap has been registered. Now, we know that at this elevation the pressure of the atmosphere is about fifteen pounds per square inch, and the pressure of the sap in the tree when it begins to run is about twenty pounds to the square inch, or about an atmosphere and a half. And more mysterious than that there is a suction or power when the sap does not flow equal to about two-thirds of that. Why is this so? No man can answer. But there are one or two things in connection with the product of today that I want to call your attention to, because I spoke a little while ago of the conditions that prevailed in the earlier times and the conditions that prevail now, and the fact that a good many of the consumers of maple sugar and syrup retain the notions that they learned in their boyhood, what the product was, and continue to call for some of the old because they do not recognize what the new is. It reminds me of Stevenson's story of Dr. Jekyl and Mr. Hyde, that good philanthropic Dr. Jekyl and that hideous monster, Mr. Hyde. He discovered that his nature was dual and by the administration of some drug he was enabled to change from Dr. Jekyl to Mr. Hyde, and it happened upon one occasion when he had turned to Mr. Hyde he tried to use the same drug or chemicals to turn him back to Dr. Jekyl, and it would not work. He did not want to disclose himself, and he called for some of the OLD drug, believing that the new was adulterated, that it was a spurious thing, but he could not change himself and died in agony. And so we who supply the trade occasionally see people who are suspicious of what is made, and call for some of the OLD, and we can not give it to them because we believe we have progressed. Now, in the manufacture of the old article it was subjected to all sorts of things that we have eliminated now. When they boiled it in a kettle and it approached the point of syrup it was sure to burn about the side of the kettle; and the blaze and smoke and dirt were blown into it and gave it a strong taste and it was called maple sugar or syrup or molasses. But we have eliminated those things and are making a more pure maple product, and those who remember the old and cry for it look with suspicion on the new. We cleanse our buckets and do not let the sap touch wood unless it as been reduced almost to the point of sugar or syrup, and then it will keep indefinitely if it is canned as it should be. To those who remember the OLD I want to show this product (holding up a jar of maple syrup) as the product of one of the sugar camps of Geauga county. If you could look through it and see what it is, you would see what we are striving after. We are approaching that and endeavoring to produce syrup of that color and it is purely and distinctly maple; it has not any impurities or adulteration in it. I know we sometimes hear people say who like the old, "Your product is too sweet." I heard of a foreigner, a German, who came over from the old country and when he first tasted maple syrup he said: "It is too sweet." They want the old dark colored syrup, and they want the "edge" taken off a little.

Now, another point concerning this business: We have been accused of adulterating the syrup, and that the purest product is spurious or adulterated with the syrup of granulated sugar. Now it is not possible for any farmer to make a cent by melting granulated sugar and putting it into the maple syrup. There is no profit in it at all. The best he would be able to do would be to earn a few paltry dollars. He could not do this without being found out. He could not buy granulated sugar in large quantities without being discovered, and our wholesale buyers that buy large quantities—their works are open to inspection all the time, and there is no possibility of adulteration or of putting out a spurious product. But after it goes from them into the great cities of the West and other places we do not know what transactions take place.

Another point concerning the crystalization of syrup. Now the sugar that is in maple is the same as the sugar that is in the cane or beet, and when the sap is evaporated down to the required consistency it reaches what the chemists call "the critical point." If you carry it much beyond that point it will all crystalize and harden into sugar, but at the standard of eleven pounds to the gallon, 231 cubic inches, there is but very little crystalization takes place. And the longer it stands the more there is of it, and in the cans there will always form some crystals, in the earlier made syrups the most and in the later made syrups the least, and this becomes very apparent to you when you examine it under a glass. I have sometimes found it difficult to satisfy a customer on that point. I have sometimes received by mail letters to this effect: "Sir, this was found in that can of syrup that you sent to me. Will you please explain?" And other letters showing that it is plainly the belief of the man that he had been imposed upon. Maple sugar is better for your children to eat than the confections that you buy at the store, and when you know how to make the maple caramels and taffies you would buy very little candy if you could get this.

REPORTS OF THREE GEAUGA COUNTY SUGAR FARMS.

The following are reports from three Geauga county sugar farms. These sugar camps are conducted with the same sagacity that characterizes the methods of a successful business man anywhere. The sap is attended to as soon as it runs, it is rapidly finished down to a fine product, and then well marketed. These reports are of one or more seasons ago, but may be taken as a fair average of what we can do. The report of sugar bush No. 3 was handed me written out in so interesting a manner that I shall read it entire, as it shows in a very plain way the methods and practices followed in a large sugar bush:

REPORT OF SUGAR BUSH NO 1.

No. of trees tapped	700
Barrels of sap gathered	354
Gallons of syrup made	87
Pounds of sugar made	1,620
Average price of sugar per pound	.08
Average price of syrup per gallon	.60
Total receipts for the season	$182.73

The price received for the sugar ranged from six cents to eight cents. A small amount for family use is figured in at the same price.

REPORT OF SUGAR BUSH NO. 2.

No. of trees tapped	1,600
Barrels of sap gathered	1,000
Gallons of syrup made	900
Average price per gallon a trifle less than	.60
Approximate total receipts	$500.00

REPORT OF SUGAR BUSH NO. 3.

The following is a history of our sugar bush for the season of 1896:

On February 28 the sun came out bright and the boys decided that it was time to hang the buckets to the maple trees. The wind was in the south and it warmed so fast that before we could tap our twenty-one hundred trees our first buckets were running over, and it was all hurry to get the three fires started to evaporate the sap.

We do not lift a pound of sap after it is put into the gathering tanks. From them it runs to the storing tanks, of which there are three, and from them to the heaters. On arch number one the pan is 4 feet by 10 feet. What does not evaporate in this pan runs into pan number two, which is 3 feet by 13 feet, and is kept boiling all the time. What does not evaporate in this pan runs into an I X L evaporator 4 feet by 12 feet, passing through each of the seven pans and comes out pure maple syrup weighing eleven pounds to the gallon and ready for the market.

All the syrup is put into such packages as the market calls for, at the sugar house.

There are three men with three teams to gather the sap from these twenty-one hundred trees and when there is a good flow of sap there is some one of them at the storage tank emptying nearly all of the time.

Our mode of tapping the trees is to bore in with a three-eighths-inch bit about one and three-quarter inches, nearly straight into the tree, and use a Hintz spout to hang the bucket on. Under no consideration do we put in the second spout until we have a few dry days, because two spouts put in the same day will not run any more sap after the first day than one spout. Usually about the first of April we put in a quarter-inch cane spout from eight to twelve inches above the first one, and then under favorable conditions of weather we get a good flow of sap again.

When sugar-making is over we always wash our buckets before packing away. This can be done with the least trouble while the buckets hang on the spouts, by driving around with a tank of hot water and washing them clean and leaving them to hang turned upside down to dry. Three men washed and put away our twenty-one hundred buckets in three days, besides taking care of forty head of cattle and seven horses.

The following is the report of what the bush produced:

No. of trees tapped	2,100
Barrels of sap gathered	1,220
No. of gallons of syrup made	1,075
Average price per gallon	.55
Total amount received	$591.25

That is the report of a sugar bush that is conducted on business principles. I forgot when I was showing the syrup and the sugar to say that the dark color from the mingling of the dust and smoke and ashes and the burning around the edges of the kettle are about all eliminated, and we are striving to produce a maple sugar of that color (illustrating). That is not possible to obtain during the whole season for almost every "run" is different in color. We hardly ever get two runs of sap that are the same in color, but we are producing an article that is much whiter and cleaner than was the old, and that is one of the points that I want to bring out, that we do not need to put in any granulated sugar to produce the white color. If it is put in the cans while it is new and clean we will get a product something like that or approaching it.

Now as to the future of the maple sugar industry: I might say that the outlook would be bright and encouraging were it not for the fact that this fair product is cursed by adulteration, and this spurious product has cast its inky shadow over it. It has laid its heavy hand upon it and all sorts of syrups bear the word "maple." We want to eliminate that; we do not want them to use it upon spurious articles, but we want to rise in our might and fight for that right which is ours. (Great applause.)

Mr. Martel: Mr. Phillips spoke of crystals in the syrup. Now, we have a man down in our neighborhood who manufacturers maple syrup, and by putting it into a pan and letting it cool, and after it is cool, drawing it off, re-heating it and putting it into cans, he says it will not crystalize.

Mr. Phillips: From my own experience I would say that if it stands from spring until fall you will find some crystals in it. This syrup which I showed you was made two years ago, and that sugar was made from the same syrup.

The President: The next thing on the program is an adddess by Professor J. Fremont Hickman, on "Some Points in Feeding for Beef." I now have the pleasure of introducing Professor Hickman.

Mr. President, Ladies and Gentlemen:

The subject is introductory to the thought that I do not know all about the subject I am about to discuss. "Some Points in Feeding for Beef" indicates clearly that I am to particularize and concentrate upon some points to which special attention has been given; points that could not or can not under existing conditions be determined by mere observation, but such as demand and require the careful and judicious use of that mechanical device we call a scale.

On the virgin soils of half a century ago corn, the greatest beef-producing food known to this country, then as now, could be grown to perfection without the addition of essential plant food such as has been given in the closing decade of the nineteenth century. The hills and valleys alike responded with bounteous crops when given proper attention by the husbandman. On account of the greater depth of soil we still anticipate a reasonably good crop from valley or low land, but when corn is planted on the higher ground the ultimate yield is almost wholly dependent upon the rainfall and the care taken to conserve such moisture. The forests have disappeared, likewise the virgin soils. Our rainfall is less evenly distributed, and with all these our blue grass pastures are not to be relied upon as they were even a quarter of a century ago. While all the above conditions were favorable the farmer never thought of selling a steer by weight. He was sold by lump, hit or miss. The above conditions have exacted more care on the part of the feeder in growing both summer and winter feed. Local conditions alone are not responsible for greater care on the part of the eastern feeder. The western ranges and the Texas cattle belt are perhaps no stronger competitors now than they were twenty-five years ago, but the Armours, Swifts and other great slaghtering and shipping establishments have made it possible for these Western and Southern beef producers to lay down at our doors choice cuts at prices which set the pace for our home production and fix prices for our whole country. In short, competition is so close upon the heels of Ohio farmers, feeders and breeders that a careful study of economical beef production is an absolute necessity unless we are willing to be swallowed up in the ever-pressing struggle and constantly narrowing conditions.

A careful study of the changed conditions indicated above caused us to investigate at the Ohio Experiment Station the common opinion that the cheapest beef is that made upon pasture. Young cattle, if in thriving condition when put upon pasture in May, usually shed their rough winter coats, with the adhering manure, and apparently make very rapid gains. With the advent of the horn fly and uncertain pastures, one year with another, I had reason to suspect that our stock were not making the gains with which we were giving them credit.

In June, 1893, we bought thirty-two head of cattle, by weight. This was what would be called a mixed lot, such as any farmer would gather up to put upon surplus pasture. There were three or four grade Holsteins, two grade Jerseys, two grade Herefords and the balance were well up in Shorthorn blood. This lot of cattle had good average pasture and abundance of running water during the entire season, but when weighed about the first of November the average gain for the four months was less than one hundred pounds, or less than twenty-five pound each per month. One year later we bought a similar lot in kind, but only seventeen in number. The weight of these seventeen steers on the 29th of June was fifteen thousand three hundred and eighty-five pounds, or an average weight of nine hundred and five pounds each. On November 1 these seventeen steers weighed sixteen thousand eight hundred and thirty pounds, or an average weight of nine hundred and ninety pounds, giving an average gain of only eighty-five pounds for four months, or a gain for each month of seventeen pounds, but little over one-half pound per day.

In 1896 three Red Polled steers, one Black Polled and one Shorthorn averaged seven hundred and seventy-seven pounds, live weight, on May first; within the following six months they gained on pasture an average of one hundred and twenty-nine pounds each, or about twenty-one pounds for each thirty days; something over two-thirds of a pounds for each day.

In 1897 two Red Polled steers, two Black Polled, two Shorthorns, one Holstein, one Jersey and one Guernsey, nine in all, averaged six hundred and seventy pounds, live weight, May. 1. When weighed November 1 they had made an average gain of one hundred and sixteen pounds each, or a little less than two-thirds of a pounds per day for the pasture season.

In 1898 one Black Polled, two Shorthorns, three Holsteins and two Jerseys, eight in all, averaged six hundred and thirty-nine pounds on May 1. When weighed November 1 of the same year they were found to have gained during the six months seven hundred and eighty-two pounds, or an average ot ninety-eight pounds each, only a little over a half pound each per day.

In 1899 one Shorthorn, two Holsteins, one Jersey, and one Guernsey, five in all, weighed on May 1 two thousand six hundred and eighty-four pounds, an average of five hundred and thirty-six pounds each. When weighed November 1 they had gained one hundred and ninety pounds each, or an average monthly gain of thirty-one pounds, something more than one pound for each day they had been on pasture.

In 1900 two Holsteins and one Jersey gave an average weight on May 1 of five hundred and thirty-two pounds. When weighed November 1, 1900, after six months on pasture, they had made an average gain of one hundred and seventy-three pounds, running a little short of one pound per day.

Leaving out the years 1893 and 1894, we have the data for five years, in which we hade had to deal with thirty steers, of which five were Red Polled, four Black Polled, six Shorthorns, eight Holsteins, five Jerseys, and two Guernseys; the average weight of these thirty steers when turned on pasture May first was six hundred and forty-three pounds; when brought into the stable at the end of six months they had made an average gain of one hundred and thirty-one pounds, or about twenty-two pounds for each month, an average of a little more than two-thirds of a pound per day for each steer. The average price of an eight-hundred-pound steer, at the first of November, for the past few years, has not exceeded four and a quarter cents per pound. At that price we would have as remuneration for our pasture for six months and for interest on money invested in the steer, five dollars and fifty-seven cents. Allowing a very moderate interest on the investment, and it brings the price of the pasture, or rather our pay for it, to about eighty to eighty-five cents per month. The best gains we have had on any one individual while on pasture was an average of nearly one and one-fourth pounds per day for the full six months from May 1 to November 1. The lowest gain covering a period of six months, was an average of a little less than one-fourth of a pound per day. This was on a steer weighing when turned to pasture almost eleven hundred pounds. In my opinion it is not profitable to pasture a steer an entire summer after he has reached so near to maturity; if he has flesh and fat sufficient to commend him to the butchers it will be more profitable to sell him and invest in two that will weigh as much as the one.

An important point which I wish to bring out as clearly as possible is that "stockers" to be fed during the winter months for beef should not be left to shift for themselves on pastures later than the last of October. Our experience for the past six years has demonstrated clearly enough that cattle of all kinds and ages will shrink in weight during the month of November, and even during the first half of it, unless they are given an abundance of both roughage and grain. At the Experiment Station, where every cow, steer, heifer, bull and calf are weighed at least two consecutive days, under the same condition each month, four at least out of every five lose materially in live weight during November days. With November pasture, fall of 1896, one steer out of five gained some in weight, while one lost seven pounds, another twenty-three pounds another thirty-three, and the fourth one lost thirty-six pounds, making the average loss on these four steers twenty-four pounds, or about four-fifths of a pound per day.

In the fall of 1898, during the month of November our steers were fed regularly out on the pasture all the corn fodder they would eat reasonably clean. Upon weighing them at 10 o'clock on November 30, and again on December 1 at the same time, and taking the average of the weights, we found the following facts: One steer lost thirty-three pounds, another twenty-one, another twenty-eight, another forty-seven, another fifty-one, and another seventeen, while one gained twenty-eight pounds and another twenty-three pounds. The entire bunch of eight steers lost an average of eighteen pounds per head during the month. From these figures we find that the average loss during November was greater than the average gain during the six summer months; or, figuring another way, the pasture and feed given this bunch of eight steers must be marked upon the loss side of the feeder's ledger.

PASTURING VS. SUMMER FEEDING.

In the spring of 1897 we had twelve head of long yearling steers, averaging in weight nearly six hundred and fifty pounds. After throwing out two of the least thrifty the others were divided into two lots of five each. Each of these lots was made up of two Shorthorns, one Jersey, one Red Polled and one Holstein steer. These young steers had been kept in good growing condition during the entire winter and on the first of May one bunch of five were turned to pasture where they had plenty of water, plenty of shade and good pasture. The other lot were kept tied up and stall fed during the seven months of the pasture season, or from May 1 to December 1. The object of this experiment was to compare cost and gains on pasture against dry feed.

The barn-fed steers were kept almost free from flies by darkening the stables. They were kept in the stalls nearly all the time during daylight, but given the run of the barnyard at night. These steers without hard pushing gained an average of a little more than two pounds for each day, while the lot on pasture gained but two-thirds of a pound per day. The lot in the barn were charged for feed eaten as follows: Wheat bran, twelve dollars per ton; gluten meal, sixteen dollars; corn meal, sixteen dollars; oats, eighteen dollars; silage, two dollars and fifty cents; stover, three dollars, and mixed hay at eight dollars per ton. At the above prices the value of the food consumed by the inside lot amounted to one hundred and two dollars and sixty-three cents. The total gain on the five steers was one thousand nine hundred and twenty-nine pounds, and cost at the above figures five and one-third cents for each pound of gain. Now, if we allow eighty-five cents per month for pasturing the outside steers, then the increase in live weight would cost but four cents per pound. On the other hand if we charge for increase in weight at the same price that the inside gain cost it will bring the value of the pasture to one dollar and twelve cents per month. Again, we find upon comparing the above figures with those given in Bulletin 60 of our Ohio Experiment Station that the summer fed beef has been produced at a cost of practically one cent per pound less than the cheapest beef heretofore grown in our experiments conducted during the winter months, and at a cost of more than two and a half cents less than the average cost of production of forty-eight steers, thirty-two of which were fed in the winter of 1893-94 and sixteen during the winter of 1894-95. Comparing the average cost of producing a pound of beef on the above forty-eight steers with the average cost of summer beef production on the five in question and we find that the summer-grown beef was produced at a cost of sixty-seven and five tenths percent of that produced in winter a difference in favor of summer feeding of thirty-two and one-half percent.

I raise the question if it will not be more profitable for the feeders of Ohio to feed more during the summer months and less during the winter. Feeding cattle during the summer months to me has been and is an interesting problem, but the feeding of these same two lots of cattle through the winter months shows a further interest. The fact has been pretty well established that long feeding periods are the least profitable. In the ten head used in the above experiment we had five that had been on dry feed for seven months and five on pasture for the same length of time. The lot on pasture were placed beside the dry-fed lot on December 1, and the two lots fed as nearly alike as possible for the following six months. Figuring the cost of feed as given above we found that the lot that had been kept on dry feed during the summer and fall months gained one thousand, one hundred and twenty-six pounds at a cost of nine and fifty-four hundredths cents per pound, while the lot that had run on pasture had gained one thousand four hundred and seventy-six pounds, costing seven and six-tenths cents per pound. Or, figuring in another way, we put beef on the pasture-fed steers at a cost of eighty percent of what it cost to put the same number of pounds upon the summer dry-fed steers, saving twenty percent of the feed. While it may not be absolutely correct, I am of the opinion that we may justly charge the greater cost of producing beef on the summer stall-fed steers to the extreme length of the feeding period rather than seek elsewhere for the cause of the greater cost.

Assuming that we are attributing the proportionately smaller gains to the proper source, we may draw the logical conclusion that beef produced by feeding steers the second six months of a twelvemonth feeding period costs twenty percent more per pound than that put on during the first six months. Another point may be mentioned in regard to these steers, namely, that each steer was weighed separately on the scales two hours before being killed and within an hour after arriving in the Chicago stockyards, after having been on the road continuously for thirty hours. The dressed carcasses were weighed and it was found that the five pasture-fed steers dressed, sixty-two percent of their live weight and the dry-fed steers sixty-three and one-tenth percent of their live weight. The entire bunch shrunk two percent in cooling, which means the difference between the hot dressed beef and the same after cooling.

FINISHING BEEVES ON GRASS.

It is a very common opinion that cattle fed from three to five months may be finished to good advantage by running them on pasture. On the 10th of May 1894, we had thirty-two head of cattle in our barn that were ready for the butchers' block. Half of these were turned on grass, taking the alternate or odd numbers throughout the list, the cattle of even numbers being kept in at the barn and treated as they had been through the winter. Those turned on grass were brought to the barn every night, stabled and fed both night and morning. They continued to eat nearly as much meal and more than half as much hay and silage as the cattle which had no grass, but during the next thirty days they made an average gain of but thirty-two pounds per head, while the remainder of the cattle gained over fifty-nine pounds each.

In 1895 this test was repeated on the same plan and with similar results. The cattle this year were turned out one week earlier and were kept one week longer before marketing, being shipped on June 15, so that they had forty-five days on grass, while the first lot had but thirty days on pasture. In the second test as in the first the steers turned out gained less during the first thirty days than those kept in, but during the last fifteen days of the second test the pastured steers made apparently a more rapid gain than those kept in, but in both tests the gain cost more in case of the pastured steers than in that of those kept in the barn.

Both lots of steers were shipped to Pittsburg on Saturday, yarded over Sunday and sold on Monday, and in both cases the total weight on Monday at Pittsburg exceeded the final weight at home on Saturday, due to the fact that the final weight was taken at home before watering. In 1894 the pastured steers apparently lost least in shipment, while in 1895 the reverse was the case, but as the weight of water drank on the day of shipment was not taken we can not give the relative shrinkage in shipment. Without taking into consideration the pasture it was evident that the cost of production of a pound of beef on the pastured steers was greater than where dry feed only was given. Shippers and dealers always prefer cattle that have not had any grass.

LENGTH OF FEEDING PERIODS.

The suggestion has already been made that the shorter feeding periods are probably more profitable than the longer ones.

It has been demonstrated that cattle fed over a twelvemonth period apparently cost twenty percent more for each pound of increase during the second six months than during the first six. Taking up our work at the Station we glean from it some facts worthy of attention. In 1896 five head of steers gained on an average forty-two pounds the first thirty days, sixty-nine pounds the second thirty, seventy-eight pounds the third thirty, forty-nine the fourth thirty, and fifty-seven the fifth thirty-day period.

In 1898 eleven head of steers made an average gain of twenty-six pounds the first thirty days,seventy-seven pounds the second, sixty-eight and five-tenths pounds the third; sixty-five and five-tenths pounds the fourth, fifty-five pounds the fifth, and twenty-four pounds the last period, which was only twenty-four days.

In 1899 eighteen head of steers gained on an average thirty-two pounds the first thirty days, eighty and five-tenths pounds the second thirty, sixty-four pounds the third thirty days, sixty-six pounds the fourth thirty, only eleven pounds the fifth thirty, but forty-four pounds the sixth period. In 1900 fourteen steers gained during the first thirty days seventeen pounds, sixty-eight pounds during the second thirty days, sixty-two and eight tenths pounds during the third thirty days, seventy-four and four-tenths pounds during the fourth thirty days, sixty and five-tenths pounds during the fifth period and forty-four pounds during the sixth period.

The four winters' feeding includes forty-eight head of steers. The average gain for each thirty days stands as follows: For the first period, twenty-nine pounds; the second, seventy-two pounds; the third, sixty-eight and three-tenths pounds; the fourth, sixty-three and seven-tenths pounds; the fifth, forty-five and seven-tenths pounds.

From the above figures we may draw the conclusion that we get the least money return for the first thirty days of feeding. The greatest average gains apparently are made during the second period of thirty days, while the third thirty reaches almost as high, but after the first ninety days the average gain in live weight increases less rapidly, while as a rule the feed is increased. Some might argue that the period of greatest gain will depend very largely upon the condition of the cattle when placed in the feed lot. I think that point has some bearing upon the question, but from my limited experience of twenty years I am inclined to believe that much more depends upon the change the system must usually undergo in transferring from a semisucculent to a dry food ration. The average steer from eighteen to twenty-four months of age taken from pasture the first of November can not be put in sufficiently good condition in ninety days nor even one hundred and twenty days to bring within a quarter of a cent of the top of the market and yet to fed him longer means more feed in proportion for each pound of gain than during the earlier feeding. It is evident, therefore, that the difference in price between half-fat cattle and finished beeves is not sufficiently wide to justify very long feeding periods.

FEEDING IN OPEN STALLS VS. TYING IN INDIVIDUAL STALLS.

In feeding for beef most of us have assumed that one of the best methods was to stall-feed the steer, giving him the minimum amount of exercise and the maximum amount of food taken up clean. While I believe this is one of the best methods of laying on meat rapidly, I am ready to raise the question as to whether or not there is a better method. To test this question our Station, about one year ago, placed six steers in ordinary feeding stalls, tied with chains about the neck. Six other steers of similar age, size and quality were placed in box stalls, about 6 by 10 feet. The first lot of steers were turned into the barnyard every day for two or three hours for water and exercise. while those in the box stalls were not let out except about once a month for the purpose of cleaning the stables; water was given them in the stalls. Three steers in each of these groups were given a wide ration and three given a narrow ration. Figuring the feed given at the following prices: Wheat bran, fifteen dollars per ton; corn meal, sixteen dollars; gluten meal, twenty dollars; ensilage, two dollars and fifty cents; corn stover three dollars, and hay at eight dollars per ton, we find that it cost forty-four dollars and five cents to produce five hundred and seventy-four pounds of beef, or an average of seven and sixty-seven hundredths cents per pound, where the cattle were tied in individual stalls and given a narrow ration. It cost by the same method of figuring forty-eight dollars and fifty-one cents to produce eight hundred and fifty eight pounds of beef, or an average cost of five and sixty-five hundredths cents per pound, where the cattle were given the same kind of feed, but fed in box stalls with room for some exercise and more liberty—a saving in this case of two cents per pound or something more than twenty-three percent.

Taking up the lot given a wide ration and figuring their feed at the prices given above, we find that it costs forty-eight dollars and forty-three cents to produce six hundred and ninety-seven pounds of beef, or practically seven cents per pound, where the cattle were tied in individual stalls. It cost forty-seven dollars and eighty-four cents to produce eight hundred and thirty-six pounds of beef, or five and seventy-two hundredths cents per pound, where the cattle were given the same kind of feed, but fed in box stalls; or, expressing it another way, the beef produced in the box stalls with the wide ration cost about eighteen percent less than that where the animals were tied in individual stalls and given the run of the barnyard from three to four hours each day. While this single experiment is not sufficient evidence from which to draw a conclusion, it points with some certainty to the possibility of greater gains and cheaper production from feeding for beef in box stalls than from feeding steers confined in narrow stalls and tied therein.

SUMMARY.

(1) Our experience indicates that while summer pasturing of young cattle is necessary, it gives very moderate returns for capital invested in land and cattle.

(2) In the single experiment given in this paper, beef produced by summer stall feeding was made at a cost of two and one-half cents less per pound than that produced by winter stall feeding in two other experiments.

(3) Finishing beeves on pasture where allowed to run from four to six weeks before going to market has been expensive rather than economical. Cattle intended for feeders if left to shift for themselves during the month of November are likely to lose about as much as they will gain with good feed and care during the following thirty days.

(4) Drawing our inference from the data given in this paper it is reasonable to conclude that the first month in a feeding period gives the least profit of the first six; the second month much better, while the maximum returns are shown in the third and fourth months.

(5) From the single experiment made in 1900, strong evidence is given of the possible advantage of feeding in open stalls rather than tying in individual stalls.

The President: Now, gentlemen, we will devote a few minutes to the discussion of this question.

Mr. Long, of Fairfield County: I would like to ask the Professor whether the use of mixed breeds in the different experiments is a fair test? Why does he not take a single type, Shorthorn or the Polled Angus?

Professor Hickman: In answer to that I might say, first, that we are making experiments with the different breeds, and it naturally follows that each experiment follows upon that which precedes, and the other fact is that the average feeder of Ohio who goes out to buy stock, buying some here and some there, gets a mongrel lot. And then this objection might have been brought up: "Why don't you try a variation of breeds?" And the question would then arise as to which one of the breeds is the better. Now, I didn't attempt to bring this out, as to which one of the breeds produced the greater amount of meat on a given feed. I want to say in connection with that point that it is our intention to publish a bulletin upon the very subject which I have given you here, and if we have sufficient data to give concerning the different breeds we will, of course, insert that. I could have gotten up a discussion here this afternoon that would have been longer that the moral law if I had brought out the point that a certain breed produced more meat than another breed on a given amount of feed.

Mr. Begg: I have certainly been as much interested in the discussion in that lecture as anyone I have heard for a long time. The facts brought out are of great value to every cattle breeder, and we are all more or less interested in that business, those of us who are in the corn producing sections of the country. But from the statements in the forepart of the lecture, where he discusses the gains in the pasturing of cattle, I do not know that he stated the kind of pasture upon which they were fed, or whether that would make any material difference or not, but it did seem to me that the gains were very small, if they were ordinarily good cattle. Now, I have studied this business for the last few years very closely, just as well as I can and keep up my farm work, not having the facilities for making scientific experiments, and I have found this to be true, that during the first two months of the season when cattle are on grass they will gain marvelously. I have had them gain as much as four or five pounds a day during the month of May while on fresh timothy pasture. I have even had them exceed that, but the shrinkage was very great and I didn't consider it a fair comparison; then they would fall to three pounds in the months of June, July and August and simply hold their own. Another important fact that the Professor mentioned is that there is danger in letting the cattle run too late in the fall before beginning to feed corn. The change should be made gradually. My method lately has been to begin feeding corn in September if I am going to fatten them. Last year I began feeding the first of September, and before pasture began to fail I had those cattle almost on full feed, and the result was that for ninety days there was no shrinkage, from the time I began feeding until I put them on dry feed. I had a gain of 75 pounds per month in succession, something I have never had before. Now, we had good water, and a good growth of grass and plenty of corn. I began in September and kept crawling up until they were on full feed. I weighed them on the first of November expecting a shrinkage, as the Professor has indicated there would be some, or a check in the growth; and the same thing will be true in the spring if we prolong or carry out the corn ration when they are put on grass a few days or weeks, so that this sudden change will not be so marked, and there will be no shrinkage.

And now I want to substantiate another statement that the Professor made, and as proved by practical experiment, that to take a steer off of dry feed and put him on grass for four or five weeks before selling him is very unprofitable to the feeder. I would rather sell for a little less out of the yard the first of May than to sell the first of June. If you carry him on until the last of June or the first week in July the flies come and the heat is more intense, the grass is drier and harder, and the result is he begins to lose and the growth is checked. I think the lecture as a whole has been a very instructive one to every cattle feeder in this audience.

Mr. O. E. Bradfute: Mr. President, those of us who are interested more particularly in feeding cattle certainly appreciate the difficulties that any experiment station would have in experimenting along this line, because there are so many small matters that enter into every experiment that makes it almost impossible to carry it out successfully. I think one of the troubles with the experiment station is the fact that its eyes are all the time upon the experiment rather than upon the cattle. Skill is directed more toward getting figures for the experiment than toward getting real gain upon the cattle. Now, I can understand very well that where you have to weigh every pound of food that you give them every day and find out what they have eaten and what they have not eaten, that the man feeding that way is at a great disadvantage, simply because your practical feeder finds out that his cattle are not gaining satisfactorily changes his feed at once and shifts to another, and undertakes to make those cattle gain in spite of the experiment. So the experiment is at a great disadvantage. Now, those of us who watched those figures carefully saw some very startling things. One of those things was that when you compare the dairy cattle with the beef cattle the beef cattle were not in it, because where the dairy cattle predominated you had larger gains than where the beef cattle predominated. Now, I do not think any of the beef men here are quite ready to concede that that will always hold good. If so, we beef men might as well go into the dairy breeds to make beef.

Another thing to be considered would be this. I think it is generally conceded by beef growers that where a bunch of cattle have been fed, not confined, but rather fed in the open, that they will show larger gains upon pasture than the cattle that have been stall fed. I think the several experiment stations in the west have led right along these lines. Now, the question came into my mind whether the experiment station cattle were stall fed or whether they were allowed more freedom. Another thing we might notice right there in the feeding of these cattle that were in the box stalls and those that were tied up singly. Now, that is a very interesting experiment, and the Professor has brought out something that is very valuable there to every man who is feeding a steer. There was one feature that I thought was rather unfortunate, and that was that he let the steers out once a month to clean out the stalls.

Professor Hickman: Only in a very limited way.

Mr. Bradfute: I thought if they had a fair sized yard they would run off a great deal of fat in a little while. I do want to say this, that in all our experience in feeding we have found that where a group of animals get together and get at some feed they have given us better results than where they were tied up singly. I remember that it was only a year ago that we were fitting a couple of heifers for the fair circle, and those two heifers were tied up singly for their feed. My man said to me that he must have a box in which to feed those two heifers together. Well, I thought he was right, and I gave him just such a box as he wanted for that business, and the results were really astonishing. Before that they were inclined to mess over their feed and they did not make the gain that we wanted. As soon as they were let together and allowed to eat together in the same box they made phenomenal gains, and almost doubled the amount they otherwise would have put on. Where you have five or six cattle eating out of the same box or manger, as it were, if they are regularly fed they will make more gain than where we put them in separate stalls and tie them up singly. That is a point well brought out by the Professor's experiment.

Mr. Martel: I feed cattle to put the hogs after them. I do not raise any cattle, but buy them. I do not pasture cattle, but go in the fall and buy cattle to feed during the winter, and turn all my attention to the raising of hogs. I raise from 100 to 150 hogs every year, and generally buy two car-loads of cattle to turn the hogs after. I feed my corn partly in the fodder. In the morning I feed corn in the fodder and in the evening I feed corn that has been husked. I feed the cattle in "bunks," and have part of the "bunks" in the shed and part of them on the outside. I put the corn in the "bunks" and then open the gate and allow the hogs to come in. My practice has been to feed about seven months, commencing in the fall, and always feeding until the first of May. Now, the experiment station seems to show that its cattle do not gain as much in the latter part of the feeding as they do in the early feeding. I can always put on most in the months of March and April. Two years ago I went and brought two car-loads of cattle from about six miles from my house that weighed about 1200 pounds. I weighed them before starting with them, and after driving them six miles I put them on the scales again and they weighed just 30 pounds a head less than when I got them from my neighbor, and it took them just thirty days to gain those thirty pounds back. The first month they gained two pounds per head, the next three pounds, and the next four pounds, so that the longer I fed them the more they gained, and I thought they ate a little less toward the latter part of the feeding than they ate at the beginning. My neighbor tried the stall feeding, but could not make a success of it. I have sheds where my cattle can go in and sleep and come out whenever they want to. It shelters them from snow and rain, and we think those cattle sheds superior to stalls.

Mr. Shirer: It strikes me that from the consumer's standpoint there is another point that should be looked after, and that is the per cent. of water the beef contains after it is killed. Now, I am told that if Mr. Begg's cattle, that made such a heavy gain on fresh grass were killed, they would undoubtedly contain a pretty large percentage of water. Now, the consumers can get that without buying it, and it is a matter of considerable importance to them when beefsteak is 15 to 18 cents a pound. I think we experimenters nearly always quit before we get to the end. I shall expect Professor Hickman, when he issues the bulletin, to tell us the per cent. of water the different kinds of beef contain.

A Gentleman: I would like to ask Mr. Martel what kind of cattle he fed that gained four pounds, and also what kind of hogs he fed.

Mr. Martel: The breed of hogs that I usually feed is the Poland China, and the cattle that I usually try to get are as near the Shorthorn blood as I can get them. I try to get cattle in the fall that will weigh 1000 pounds, and then feed them to 1400 or 1500. Last year I tried a little experiment. I got some cattle and put them on pasture. I rented a pasture and put them on it. It was a bad time in the year to get pasture. It was very dry, and those cattle gained only 18 pounds per head from spring until a little after harvest. I took them home and put them on my home fields, and as soon as there were roasting ears on the corn I commenced to feed them the green corn, and they gained two pounds per day. This is the first time that my cattle have not lost in November, but this year they have been going right on gaining two pounds per day, and the next time I weigh them will be when I go home from this meeting. They have gained two pounds per day, but they did not do it in the fore part of the season.

The President: Gentlemen, we are to have a very interesting meeting this evening, and I hope you will all be present. Mr. C. M. Freeman will deliver an address upon the subject, "Can we afford township high schools?" and Mrs. J. S. Reichard will read a paper on "The lights and shadows of farm life."

And thereupon the Institute was adjourned to 7:30 o'clock p. m.

EVENING SESSION.

Tuesday.

At 7:30 p. m. the President called the Institute to order, pursuant to adjournment, and introduced as the first speaker of the evening Mr. C. M. Freeman, of Tippecanoe City, Ohio, who delivered an address upon the subject, "Can we afford township high schools?"

Mr. President, Ladies and Gentlemen:

Farmers are asking this question all over the state. In cities, towns and villages high schools are established as part of their corporate institutions. A village containing but few inhabitants, and whose taxable property is comparatively small, deems it one of the first essentials to establish a high school, but the moment we cross the boundary line into the country, or township, the relation of the inhabitants to the high school seems to change and the question is raised by one, yea, by hundreds, of their number.

While I have not been able to discern any difference between the relation which the high school bears to the country and to the city, yet the fact exists that the villages and cities have adopted it while the country has not. This condition suggests a consideration of the subject from a farmer's standpoint.

I can not see why, with the same amount of property, farmers should not ask, "Can we afford the common schools, or any education?" I am not slow to admit, yes, I have positive proof of it, that if education were left optional with the people as individuals 25 percent of the children of Ohio would go uneducated. At present it reaches 52 percent of the population of Ohio, ten years of age or over, while the percentage for the United States is 13.3 percent. This large percentage exists in Ohio, where we have a compulsory law, and even with this law scores of children, fourteen years of age and over, are out of school. That we have a compulsory law is indicative that the state deems education necessary for the welfare of the public.

It might be well, then, to consider whence came this idea of public schools. We find that the American public schools were the first the world ever knew as being a part of the public institutions. The idea came with the idea of self-government. Our pilgrim fathers believed that public schools were essential to the maintenance of a republican form of government. They thought, and wisely, too, that to build a free state in this new land we must have a system of education under public supervision to be successful. So our school system is not the scheme of a few designing men, but is indigenous to our soil. As early as 1647 we find this statute: "When any town shall increase to the number of one hundred families, or househoulders, they shall set up a grammar school, the master of which being able to instruct the youth, so that they may be fitted for the university." Notice, it says, "*shall* set up a grammar school"; then and there the foundation for high schools was laid; they were made a part of our public life, and have kept pace with common schools in cities and villages ever since. While the grammar schools of that day might not answer the present purpose of high schools, the object in view was the same. I apprehend also that the common schools of that day differed somewhat from our common schools. The word "town" in the above statute I find to be synonymous with the word "township." I can not find that the statute was intended only for villages and cities, and am at a loss to know why or where the separation took place. It is my opinion that the law never changed, but that the people of the country became negligent and relinquished their rights under the law.

Our school system is here and here to stay. Whatever may be reconsidered of our public policies, there will never be a repeal of the public school law. A free republic without the public schools would be short lived, indeed. The intelligence and morality of the citizens of a republic are its only safeguard, its only promise of perpetuity, its only principle of endurance. All history proves that of all the elements that work social, political and financial ruin and decay the most alarming, the swiftest and most effective is that tool of every demagogue and dishonest partisan, an ignorant and factious people. The state ought to protect its public buildings against fire, insure its peace by police and militia and increase its prosperity by well-directed efforts to promote the useful arts and sciences; it ought to take that other step which is more direct, more sure in its results, far wider and more lasting in its effects, and provide an education for every child within its borders.

But the state does not do this for the sake of the child alone. The educational tax is not levied to be returned, through the education of his children, directly to the man who pays it, nor yet because the payer wants something, but on the same principle as that upon which every other tax is levied—because the public wants something. Public education is not a great and generous giving upon the part of the state; it is not an act prompted by a profound interest in James, William, or Mary, for of these, as individuals, the state knows little and cares little, if at all. It does not make a spontaneous, free-will offering of certain educational privileges to these and to others because education is a good thing for them individually and because they might not otherwise secure it; the state thinks, with Chancellor Kent, that to send a boy into the world uneducated is to defraud the community of a lawful citizen and to bequeath to it a nuisance. The state simply has the welfare of the community in mind and does only that which it is compelled to do, and the work of the state in public education is no exception to the rule. There are some of the reasons why the state should have control of our ducation. (In the above I quote largely from Dr. Canfield, former president of the Ohio State University.)

While this takes the broadest possible view of the subject, and does not consider the work done until the child has taken a course in the university, let us consider the general effect it has upon the farmer not to receive an education equal to that of men in other business pursuits. If the farmer had not relinquished his rights and had maintained the high school as it was his privilege to do, he would be occupying a higher plane today, in business and society, than he actually does occupy. What is it that gives a community, a state or a country, its standing? What will make me respect and speak well of a locality? It will not be the fine farms or nice buildings, the good stock or good roads; it will be the intelligent men and women, the intelligent boys and girls, that will cause me to admire and speak words of praise for a community. It is the intelligent men and women that determine the standard of any state. To raise the standard of a township you must increase its intelligence, and this is increased for every intelligent person added, whether he comes from away or is reared at home. It is decreased every time an intelligent man removes from the place, and if you take ten or twelve of the best men out of your township you take away too many.

The farmer's boy must be educated to be able to compete in the race of life. It will not do to consider how some men succeeded during the past fifty years, on the farm without an education, and conclude that a boy can succeed for the next fifty years without one. I repeat it, the farmer of the future must be better educated than the farmer of the past, or of today. His brain must guide him to success if he achieves it.

The farmer of today laments that he is not able to cope with his city cousins in business and politics. Let me state the case: If you want your boy to be a lawyer, or a doctor, or to follow any profession, you give him an education to fit him therefor. Is it any less necessary that the boy who is to stay on the farm should receive a correspondingly good education? If it is true, and who disputes it, that an educated mind is more able to grasp a situation and to defend itself, and has broader views than an uneducated one, what will be the result, ultimately, if the farmer refuses to educate and every other class is educated? Will he not sink lower and lower in the business, social and political scales? He certainly will.

How do farmers today compare with other business men in education? I do not know. I wish I did. How do the farmers' children of today compare in education with other children? This I am unable to answer. In Ohio the average age of boys and girls when they enter the village and city high schools is fourteen and one-half years; it varies in counties, some averaging younger, some older. What does this suggest? It suggests, my friends, that your boys and your girls, if they stop at the end of the common schools, are to begin their life work at the age of fourteen and one-half years. Is it possible for a child at this age to be fitted for the manifold duties of a lifetime?

We use better judgment in almost everything else than we do in preparing our boys and girls for life. "More cannot be got out of life than we put into it." More cannot be got out of a farmer's life than is put into it. The development of our boys and girls will depend largely upon the opportunities afforded them. If we expect to produce good crops we must see that the ground contains the essential elements to produce those crops; if we desire an extra quality or an extra yield it likewise requires extra care and food. I believe there is no father or mother who does not desire to have the children do well, and I doubt not they have many a day-dream about the elevated station their boy or girl may sometime occupy. How senseless is such as idea unless that child has had the proper food to fit it for the position. Yet they dream on and on as if their children could attain eminence by feeding on thin air and that ofttimes polluted with unholy influences.

At no time in the life of children do they need the refining influences of good associations and good literature as much as they do during the tender years from about fourteen to twenty. If we can tide them safely over this period, and have fixed in their minds principles of manhood and womanhood, we have made them strong and kept them pure to do life's battle. Where can we find a better place during these years than the school room, especially the township high school room?

The men who have figured conspicuously in the development of our country, who have led in the advancement of all industry, the men who enjoy a world-wide fame in literature, in science, in art, in statecraft and in the professional world, have not been men of chance, but have been the product perhaps of a dozen generations of preparation. It is true that if we wish to prepare a man for any one purpose we should begin with his grandparents. Let us not find fault with our grandparents, but let us so live that our grandchildren will not have occasion to find fault with us. I repeat: we stand at the head of the future generations; our habits, our temperament, our intellect and our physique will control their destiny. What lies within our power should be done for their good and we will be held accountable if we do not do it. "But," says some one, "this will cost something." If it did not cost it would be worthless.

While I am not able to set forth the entire value of a high school to a township, I can give you the cost of maintaining one, as we have it in Bethel township, Miami county. Mr. Corson, late school commissioner, informs me that it is one of the best in the state. We have a one-story brick building, containing four rooms—cloak room, library and two recitation rooms; the library and recitation rooms are divided by movable partitions, and by raising these partitions we have an audience room in which we can seat five hundred people; we use tables and chairs, so we can arrange the rooms to suit our convenience. We employ two teachers; the principal is the superintendent of the township schools. The high school term is six months. We have from fifty to sixty pupils in regular attendance. We have outbuildings to accommodate twenty-five horses and buggies. The buildings, furniture, heating apparatus and two acres of land cost seven thousand dollars. The taxable property of the township is one million ninety thousand four hundred and ten dollars; to establish the high school cost seven mills per dollar; therefore:

Property worth $10,000 paid	$70.
Property worth 5,000 paid	35.
Property worth 2,000 paid	7.

The cost of maintaining the high school is eight hundred dollars per year.

Property worth $10,000 pays	$8.00
Property worth 5,000 pays	4.00
Property worth 1,000 pays	.80

In connection with these figures, I wish to give you some more: Our township pays to indigent soldiers two hundred and eighteen dollars per year; to poor fund, one thousand and ninety dollars; to road fund, one thousand and ninety dollars; to court house debt, one thousand three hundred and eighty dollars; to state common schools, three hundred and eighty-four dollars; to county officials, two thousand two hundred and ninety dollars.

Here are more: Under the Boxwell law it would cost us to send fifty-five pupils to other high schools in the county an average of twenty dollars per pupil, making a total cost of eleven hundred dollars per year. The interest on seven thousand dollars at 4 percent is two hundred and eighty dollars, which, added to the cost of maintenance, makes our yearly expenses one thousand and eighty dollars, thus saving us twenty dollars per year.

We have over eight hundred volumes in the library. Each year we are treated to a good lecture course and a farmers' institute. These afford our people an opportunity to see and hear our ablest men and to learn something of the world.

Our high school begets an educational influence at home; small children look forward to the time when they can attend it. It educates our own school teachers and keeps this money at home. It keeps our brightest boys and girls at home and gives them the protection of a parental roof when they most need it, and many boys and girls are ruined by sending them away to school when they are too young. A child at the age of sixteen is not always able to withstand the temptations of the world. Again, attachments for home are always greater for the child who gets his education at home; foreign education too often works mischief to farmers' boys in creating a dislike for the farm, or an unhealthy ambition. Then, too, the township high school affords an opportunity for the poor and gives them hope and encouragement. Nor is this all; the better the schools, the more valuable the property in the township. Suppose you should close all schools for ten years, what effect would it have upon values?

Property owners are interested in educating citizens to protect their own property. An illiterate and ignorant people is the greatest menace to the government that we could have. An educated man is quicker to perceive his duty as a citizen; a man who has studied the history of his country, who has been taught the formation of his government, who has acquainted himself with the sacrifices it required to establish and maintain a republican form of government, has a keener sense of his duty as a citizen than the man whose knowledge does not extend beyond the boundaries of his farm. These are not empty phrases, no matter if we do resent them individually; they are facts which have been amply demonstrated.

We farmers constitute 41 percent of the population and are practically without voice in convention, legislature or congress; and yet a man appears here and there and says he can not afford the township high school! My brother, you can not make me believe that as long as I see you paying from two thousand dollars to three thousand dollars for a horse, a thousand dollars for a cow, five hundred dollars for a sheep, two hundred dollars for a pig, forty dollars a ton for manure and twenty-five dollars for a rooster. But you do make me think that you appreciate your horses, cows and your pigs more than you do your boys and girls, and this is the reason you are willing to spend more money on them. You can not plead poverty; your tax receipts show to the contrary. It is all right and proper to take care of your business and to make money, but making money is not the end of life; there is something higher. Wise men, great men, are more useful than great fortunes, and we need more intellectual men and women on our farms. "Knowledge is power in what sphere of life soever it be exerted." The greatest aim of the farmer today should be the elevation of all connected with the farm.

This can not be accomplished except by intelligence diffused through the present, the rising and the future generations generally, until the farming classes are fully equal to the others in general information and refinement as they are now in morality. Numbers can not serve instead of culture in giving character and influence, or we would long ago have had a majority in every convention, legislature and council in the land. Wealth may be a means to this effect, but it does not and can not take the place of the end itself.

Here is where we call a halt in the tendency of the times, especially among the farmers. Give the boys and girls more intellectual advantages; teach them the habit of investigation and thought; in short, give them a thorough education and you have given to them a rich legacy if all else be gone. Teach them to respect themselves and thereby command the respect of others.

A farmer must have a certain amount of education to give force to his character and dignity to his occupation. The younger generation is learning that a farmer's life is noble, that the tide is slowly but surely coming his way, and the one who has his ship launched with care and rigged with experience, success and honor will start on his voyage under fair auspices. All you need to do, then, to keep mail, to dignify labor and instill into their minds the fact that the honors of the drudgery, to place within their reach the facilities for acquiring a good education, to give them free access to the literature of the world by free delivery of rural mail, to dignify labor and instill into their minds the fact that the honors of the American people will soon crown, more than any others, the heads of the intelligent farmers' sons.

Who, then, will ask, "Can we afford the township high school?"

The President: This subject is very near and dear to all of us, and it is now open for your discussion.

Mr. Shirer: We are always reaping what we sow, and we sowed wrong, our forefathers did, and that is the reason that Brother Freeman has had so much trouble. You know they sowed that "education is only to make money." Now that is wrong. We ought to sow that "education is only for selfishness." I mean we ought to obtain an education for our own personal selves, for the comfort that it brings to us, and not for the sake of making money. There is the mischief. They sowed that and we have to reap it. Now we have to sow that people may realize that education is for our own selves, and not for making money. And another thing we are sowing, and that is the country schools copy right after the city schools, and that is the reason the boy graduates at fourteen years of age. It was not that way when I was a boy. We didn't graduate until we quit, and I was in a township school until I was twenty-five years of age. Now, you see the question is, what are you going to do? I believe Brother Freeman has got his speech wrong. The question should not be "Can we afford high schools?" The question is, will we accept them? By that I mean that we are taxed for the kindergarten, for the common school, and taxed directly and indirectly for the State university, and it follows that we ought to accept what is between the two extremes. It is not a question whether we can afford to have that other part, but will we accept it? Now, don't you see there is going to be a great revolution before very long? The high schools are coming up and the State university has to step higher, Mr. Chairman. I say the great mistake in the State university today is that its entrance is too low, on too low a grade of scholarship. I do say that the State university here in Columbus should commence the work where our ordinary colleges of the state leave off. That is my idea of what the State university is for. Here is the kindergarten, then the common schools, then the high schools, then our ordinary colleges, then the State university should come right in, and the time is not far distant when we will have at the City of Washington an educational institution that will take up the work where our state universities will leave off, and when that period comes then the Uuited States may be proud of her educational system.

Mr. C. R. Wagner: The question is, can we afford township high schools? Today we are paying annually in this state about thirteen and one-half millions of dollars for the support of our common schools. Now, the question is, are we getting value received for the money? The Boxwell law, as amended, says that the township shall pay the tuition of her graduates in some high school of the county. Now the question comes up, can we maintain a high school of our own cheaper than we can send these scholars to some high school outside of our township? That depends on how many go and the cost of maintaining the high school. I maintain this, that if we had a high school in the neighborhood where our children who have passed the Boxwell examination could go, their board and rooming thereby being less than the necessary expense in attending those schools, I believe there would be twice the number attend the high schools that there are today. Then there is another point, and that is the moral point of view. Some of us have noticed the effect that it has on some children to send them two hundred miles from home to attend a boarding school. They are thrown upon the tender mercies of an outside and cold world. It would be far better if we could have a high school for these same children from fifteen to eighteen years of age under our own care and control, under the careful watchfulness of the father and mother at home. I would like to have my children remain at home under my personal care. We know that temptation will come to them once in a while. I, for one, think that the township high school is an important subject, and I am glad to see the Institute take a step in an educational way. I believe that something good will come out of this talk at this time in an educational way in better school facilities, especially in the high schools.

Mr. White: Would Brother Freeman please state if there are any other high schools in the township of which he spoke?

Mr. Freeman: There are no village schools; we have two small hamlets. One had a building with three rooms and the other with two. Neither was near the center of the township. We were entirely in the country.

Mr. White: The gentleman speaks about a four years' course.

Mr. Freeman: I mean a four years' course in the township high school. We simply grade from the common schools right up through the four years' course.

Mr. White: Now, I live in a township where there are two high schools in villages where the scholars would be exposed to the conditions that the Brother speaks of. What would you advise under such circumstances?

Mr. Freeman: I came across an extreme case in the western part of the state where they had a township high school and a village high school inside the same corporation. Now you can not advise until you know the conditions. The town school proper had a peculiar course of study. In addition to that they required each one to pass an examination of the county examiners for a teacher before they would graduate them from their town school. Some thought it was very foolish. Well, now, they would not condescend to do anything that the people of the township wanted them to do. They set up an establishment of their own. I think the better plan would have been for the village school to have changed a little bit, because the school was weak, and the other was weak, and have gotten together. There was just as much temptation by the devil in one school as there was in the other. You have to be governed by your environments.

Mr. Scott: While I have always felt an individual concern as to the matter of education, though having had a limited amount of it myself, having nothing but a high school education, I have listened to Brother Freeman a number of times on this question at farmers' institutes. But in my own case we have one of the special school districts which has had an excellent high school in it for a long time, I might say twenty-seven to thirty years. Now, that high school has been the only means by which the students of that township, in any of its schools, have received a high school education. Now, they could not attend any other high school without paying for it individually, or else under the Boxwell law which has regulated that matter, have the township board of education pay for it. Now, our township never saw fit to do that, but I suppose it is mandatory at the present time. I would like to ask Mr. Freeman if, under those conditions, it would be good sense on the part of the citizens of our township to make any departure from the current situation there, with good teachers, and, in fact, a good set of directors, who are able to keep up that school in excellent condition, and graduate first class students ready to go out into the world either to teach or to take up some work in some other educational institution. What would you advise?

Mr. Freeman: I have only one way to judge, and I can not do it successfully without sufficient information.

Mr. B. B. Marshall: I would like to say one thing in regard to this centralization. It occurred in my township, the one in which I was raised during my school days It struck me very forcibly when Mr. Freeman spoke on that subject, and it occurred that I should speak a little on that myself. In our township there was a graded high school, and said to be one of the best of the state for a township school, and there were a great many graduated from that place, that is, for a township school, and I do not know of one that has graduated in that high school that has become a farmer. And that is not all of it. Those persons that I have in mind that graduated were persons of high respectability and good citizens, in good society, and they left us there without their presence to help build up that society, and went away to other places to devote their time and energy. That is the condition of our township. They have moved out of our community and some of them are now in this city.

Mr. Wagner: Mr. Freeman, suppose that the principal or superintendent has charge of the township schools. Does he work during his school term as superintendent of those schools?

Mr. Freeman: Everything is supposed to be under his direction.

The President: Perhaps we have devoted as much time to this discussion as we can well do, and we will now listen to a paper by Mrs. J. S. Reichard, of Milton, Ohio, on "The lights and shadows of farm life."

Mr. President, Ladies and Gentlemen:

Worcester tells us that a farm consists of lands in a state of pasturage and tillage for raising the different products of agriculture, and a farmer is one who cultivates a farm or land. "A farmeress" is a woman who manages a farm, or, as the Rural New Yorker hath it, "a *farmerine* is the wife of a farmer."

The earliest successful farming on record was carried on in the valleys of the Tigris, the Euphrates and the Nile. Noah was a husbandman and the owner of extensive vineyards, Abraham and Lot were owners of large herds of sheep and cattle, Moses was a shepherd, Saul was a cattle herder, Gideon threshed wheat, David loved to feed his flocks.

But it would not be consistent for me to give a history of ancient agriculture, as my purpose is to present some of the lights and shadows of farm life as it exists today, and my experience of forty years or more, and household conveniences of some years past and what they are today. Also the advantages the child of today enjoys in comparison with those of our childhood days, the demands of the parents upon the children and the manner of living then and now.

Pure water is a necessity to the health and comfort of a family, and in most houses in this country is brought into the living rooms by hydraulic pressure or some other mechanism, where the housekeeper can turn a faucet, in the same manner as can her city cousin, and receive a supply as inexhaustible as if it came from an artificial reservoir. In the olden time it was brought, by the women of the household, from a well, spring or stream, perhaps a half mile away.

The light in the homes of the farmers of the present day, furnished by gasoline, acetylene, or natural gas, as a few have, or even with what is in more common use, kerosene lamps, in their many elegant and useful forms, is in vivid contrast to the pine knot, the lard lamp and tallow candle of former days. The "number two" Dietz lantern of today is like a searchlight in comparison with the lantern of our fathers. My first remembrance of a lantern was that of a tin cylinder pierced with holes and a tallow candle placed in a socket within, which, when lighted, gave a faint illumination. It was, indeed, a shadowy light.

We now have the steel range in the kitchen, with hard coal, or oftentimes natural gas for fuel, and the furnace supplies heat for the country home as well as do steam and gas for the town house, and in summer farmers' wives use, for their convenience, gasoline or oil stoves for cooking purposes. Many a pile of wood in earlier days lay near the house, some of it ready for the huge fireplaces, some in long logs and broken tops of trees, these same treetops serving for drying the family wash, as rope lines were expensive luxuries and the pinless, wire lines of these days were unheard of, yet the coarse, home-made clothing and linen sheets were as white and sweet as those of today. Inside of those old houses was comfort, although of the most simple kind. The memory of one such home is with me always; the kitchen was dining-room, sitting-room, library and parlor; the walls were low and the rooms dark, having few windows to light the interior, very much unlike our modern homes with their many rooms, high ceilings, large windows and up-to-date furniture. One of its prime attractions was the mammoth fireplace, filling up the entire end wall of the kitchen, making a cheerful picture with its blazing logs. The floor was of hard wood and the hearth of broad, flat stones. or brick. Near the fire. depending from the beams in the ceiling, were broad pieces of bacon, huge, yellow rings of pumpkin, large bunches of dried herbs, and long festoons of corn, braided together by the husks, as well as strings of dried apples.

The furniture of this home was strong and durable, and consisted in part of a spinning wheel and a big cupboard, which served instead of the sideboard, china closet or buffet of more modern times. This same room served as a laundry, and was comfortable enough on washdays, although full of steam issuing from the huge kettle of boiling clothes hung from the crane. A barrel stood at one side partially full of soiled clothing and soapy water, and I, as the eldest daughter in the family, was forced to wield the "pounder" with a vim that bid fair to rid the garments of buttons as well as of dirt. Now in many families "blue Monday" is shorn of its terrors by the use of stationary tubs, waste pipes, and the gasoline engine to run the washing machine, as well as other household appliances for lightening the labor of the women of the farm.

In earlier times the spinning and weaving of the material used for clothing was all performed in the common living room by the mother and as many of the daughters as were old enough to take part in the work, the children watching with a great deal of interest the roll of cloth on the loom growing larger and larger as the days went on. If it happened to be cloth for the winter dresses the interest was the more intense as was natural. Sometimes the roll of flannel would be dark blue, sometimes red, and at other times af a striped or checked pattern. Then there were rolls of wool ready for grandmother's spinning wheel, and big bunches of the raw wool also. Dear me! my fingers ache when I think of the countless pounds of the sticky stuff we children picked, and the numberless burrs with which we scratched our hands. Now, the looms of the world vie with one another in the manufacture of cotton, wool, linen and silk for our use. How would the farmers' wives of the present day, who are sometimes inclined to look on the dark side of the picture, have enjoyed their lives if their lot had been cast in those times? Truly the shadows were far in excess of the lights of farm life then. In that far-away time the material, after being taken from the loom, was fashioned into garments by the mother aided by the daughters, the work being done with the needle, instead of the ever-ready sewing machine of today.

The dinner in the old-time farmer's home frequently consisted of a big dish of roast pork and potatoes at one end of the table, a huge corn pone at the other end (is ever corn bread so sweet these latter days?), the milk, with tea for father and mother was placed at one side, and the crowning glory of the feast at the other: this was baked in a deep dish, and made of apples cut quite fine and a crust thick, rich and brown; this piece of culinary art was called a cobbler, and very good it was, too. After dinner the children swept the floor, rubbed up the hearth, and, after the dishes were washed and put away, were set to shelling corn for the sheep and for the winter's hominy, cutting and sewing carpet rags, or helping to knit the stockings and socks for the family, there being no corn shellers and knitting machines to lessen their labors.

The short winter afternoon soon drew to a close, the big table was again drawn out, the fire replenished by a back-log and fore-stick and mountains of splinters and hickory bark heaped upon them, the bright blaze leaping out here and there, lighting up the low room with a cheerful glow. The father and all the family were there, an unbroken band, happy, contented, enjoying the homely comforts of the well-to-do farmer's home of that olden time. Indeed, this was the *best* time when the day's work was done and the family was gathered about the table with its goodly burden of bread and butter, honey, milk, cold meat and baked apples. We required no more. The wind blew a northester sometimes at night—we of today would call it a blizzard—and the snow whirled and eddied and formed wonderful drifts, but the fire was warm and bright, all was snug and cozy. Prayers were said and the family was snug in bed by nine o'clock.

The timepiece of today is in strong contrast to the old frameless clock, fastened on the wall, its long pendulum swinging to and fro, or the tall timepiece, reaching to the ceiling, usually found in the corner near the fireplace and close by father's arm chair with its roll of bearskin.

Instead of the healthful food of former days our daily bill of fare is now composed of white bread, made from roller-process flour, the nutriment nearly all extracted, accompanied by tea and coffee, rich cakes, pastry and other unwholesome viands, prepared from the adulterated ingredients of the present, and which are sufficient to ruin the stomach and poison the system of an athlete. The ingredients are not alone to blame; the cooks sometimes are accountable for many of the ills, woes and diseases which are devitalizing human vigor and slaying the human race; they are responsible for a large percentage of the sickly lives and premature deaths in this country of ours. In far too many instances a woman who considers herself fit to manipulate the frying-pan, bake pies with more or less indigestible covers, boil tea and coffee, etc., calls herself a professional cook and boldly takes into her reckless, ignorant hands the welfare of innocent people who never tortured her.

The glitter and tinsel of cities, the honors ofttimes bestowed upon those in professional life, the apparent ease of accumulating wealth in commercial pursuits on the one hand, and the humdrum existence, snail-like progress, and slovenly, ignorant farming on the other, have driven many young, aspiring men to forsake the old farm home for more progressive vocations. Many farmers' sons and daughters of this period are in college, or perhaps teaching, it may be in some far-away state, or employed or in business in a nearby city, getting a few days' vacation in the course of the year, at Thanksgiving time or Christmas, to spend with their parents; possibly there are one or two younger members of the family at the country homes. But, happily, sometimes a young man decides to follow the calling of tilling the soil as a more independent occupation than working in a store, office, mill or shop for an employer who owns his time, and often it seems, his body also. Again, I hear the daughters say the farm is their choice of a home, while others quite frequently object to the drudgery and disadvantages of country life, claiming that the wife of a farmer is compelled to shoulder a large share of the responsibility, while the city man's wife has the living made for her.

In those earlier years much was expected from a woman at the head of a household. Not only was the country more sparsely settled and the means of transportation wretched, but most of the modern conveniences for housekeeping had not then materialized. Marbleized granite ware and the durable, light aluminum cooking utensils (which the dealers say will last a lifetime) had not been invented. Canned meat and vegetables were, of course, unknown, and many things had to be done at home that are now done for us. Doctors were sent for only in grave cases, and a family medicine chest, together with some knowledge of its use, was expected of every woman at the head of an establishment.

The Dutch plow, with its clumsy wooden moldboard has given way to the polished steel plow of today. The classic sickle has been supplanted by the great reaping machine, the scythe by the mower, hay is stacked by horsepower, and the boy, bag and hoe has been superseded by the automatic corn planter; the steam thresher now does in a day the work of a thousand flails. Yet with all of our modern appliances for making easier and more pleasant the work of the farmer and his household, we feel certain if we would conform more nearly to the simplicity of living in vogue when we were children there would be fewer clouds and paler shadows for the farmer and his family.

The facilities for educating farmers' children in the United States excel those of any other nation in the world, and the children of today possess the advantages of a common school education at no cost except their parents' proper proportion of the necessary tax, while in former years schools were carried on by subscription, parents who were able to do so paying tuition for their children.

The little ones of the present age are supposed to have a playroom or nursery where the temperature in winter does not vary far from sixty-five degrees, an open fire, a bare floor, plenty of light and ventilation, and the walls hung with good paintings and engravings, for a fine picture expands and elevates the mind, forming a taste in early life for the refined and the beautiful. Nursery! why the very name tells us what it should be, the home of childhood, the most important room in the house. We take it for granted that the mother is the head nurse. I have in mind a mother, living on a farm, who allows her children to hold a court of high revelry for an hour before bedtime—the children's hour—devoted to romping, dancing, shouting, singing, rioting and play.

"Between the dark and the daylight,
  When the night is beginning to lower,
Comes a pause in the day's occupation
  That is known as the children's hour."

The child today begins his education by being instructed in the kindergarten by illustrations, pictures, and by encouraging his observation of ordinary things about him; while we of earlier years were forced to decipher the meaning of various knotty problems found in the text books of that period and were obliged to arrive at our own conclusions, generally vague ones at the best. Play grounds and play are the best schools we have, for they teach a great deal not taught elsewhere. They give lessons in health, which is the greatest wealth that can be bestowed, for health is wealth. I fear the children of the present time are in danger of being too much educated, for, in many instances, their intellects are overtaxed and, thus weakened, but with a strong healthy body in due time the brain will bear considerable intellectual labor. As I recall the old-time school I can but think, if its discipline was somewhat more brutal than that of today, its course of study was far less so, and yet to a nervous child the old discipline was terrible. The long hickory or beech switches hanging on the schoolroom wall haunted me night and day, and whenever there came an outbreak between master and pupils the thoughtless child often received the beating that should have been given to the malicious mischief-maker.

The teaching in these schools was often quite absurd; my brother was made to go through the old "Elementary Spelling Book" four or five times before he was thought fit to learn to read. A favorite way of teaching the state capitals was by singing twice over something like this: "The State of Maine, Augusta, *it's* on the Kennebec," and so on down to the newly annexed State of Texas. The only school apparatus which we had was a miniature globe hung on a wire and held on a portable standard, to give us some idea of the shape of the earth and its revolutions. The pupils of the present day are furnished with the best of text books and the finest school apparatus, and they have more knowledge of the human body, its different organs, their functions, etc., than did the average physician of fifty years ago, owing to the different physiological charts and the intelligence of their instructors. In some parts of the state the pupils are taken to and from the school rooms in nicely equipped wagons. It seems to me that any boy or girl with ambition and moderate ability can procure a college education in these days of quick transportaion by steam and electricity, for time and distance are controlled and the means can be procured, if desired, for the accomplishment of the purpose. When I used to hear people speak of Oberlin, Hiram, Buchtel, or Mt. Union College, it seemed as far away and inaccessible as the Paris Exposition of the part year was to the people of Ohio.

The demands of the parents upon the children were quite different in those days from what they are today. They were taught to labor very young; the boys gathered brush and chips in the spring to prepare the clearing for the breaking plow; later they rode the horses to cultivate the crop, pulled weeds and in harvest time scattered the hay cut by the scythes of the mowers and raked the grain into sheaves for the men to bind; in the winter they attended school, but much of the time were kept at home to ride the horse while he tramped out the grain and clover seed, and turned the fanning mill to clean the same. The children slept up in the "loft" over the kitchen, and the girls came down in time to milk and prepare the morning meal. There was no loitering in those times, for all were up a long time—yes, a very long time—before daylight.

Those of us who have had the care of children in modern times are, as a rule, very lenient and indulgent, and do not, I fear, demand the honor and devotion that the young were required to give their parents in the olden time. Children take all their parents give them—money, clothes, food and shelter as a matter of course. Perhaps we have committed that pernicious sin of saving nothing for ourselves and everything for our children; there has been too much devotion on our part; our education has not gone on with that of the children. Education, in this world, or any other, never stops, and the education we get from varied association with many people is as good, if not better, than that which we get out of books. Indeed, people are books.

"Ought we not to love our children better than ourselves?" you ask. No. "Love thy neighbor as thyself," says Scripture. Your children are your neighbors; mark the passage, "*as thyself*," not "*better* than thyself." There is a certain amount of love due from everyone to himself. If you love your body, you will keep it properly cleansed and clothed; if you love your stomach you will not put anything in it to hurt it; if you love your mind you will see that it is kept clear and polished, bright and ready to receive the best ideas that come floating to it from all around. When we love our children so much that we are willing to give ourselves away for their sakes we are helping to make a ruin of them, and we are making ourselves less and less able to attract their love, regard, esteem and respect.

Horace Mann, the great apostle of the people, says to parents: "Prepare your children by the proper training to become good citizens. Develop their capacities, enrich their minds with knowledge, imbue their hearts with a love of truth and duty and a reverence for all things holy." If we fail, our republic must go down to destruction as others have gone before it, and mankind must sweep through another vast cycle of sin and suffering before the dawn of a better era can arise upon the world.

The Grange, the Farmers' Institute, free rural delivery of mail, the two latter the legitimate offspring of the Grange, and the telephone, are doing much to eliminate the shadows which obscured farm life but a few short years ago. The women, especially, should feel thankful for the lessons learned in the Grange, for it has taught them the right of suffrage and how to use it; also parliamentary law and the courage to appear before the public.

And thereupon the Institute recessed until ten o'clock a. m. of the following day.

MORNING SESSION.

Wednesday.

The President called the Institute to order promptly at ten o'clock, and announced that the first order upon the program would be an address by Mr. R. H. Wallace, of Chillicothe, on "Heredity in Animal Life."

ADDRESS BY MR. R. H. WALLACE.

Mr. Chairman and Gentlemen:

When God created things He said "Let everyone produce seed after his own kind." And in that he established the law for the preservation of the species of man and things. And in the establishment of this law He has so thoroughly fixed things that species have been intact for many thousands of years, and are still intact. Darwin's evolution theory notwithstanding. The species are preserved without violation. The nearest we have ever come to any violation of this law that I know anything about is in that animal which has neither pride of ancestry or hope of posterity—I mean the mule. And yet God has placed this law within our hands, this law of heredity, under certain limitations, for the good of mankind and for the betterment of the world.

If you will go with me back a few centuries in the past into Southern Asia Minor we will find a strange, yet somewhat familiar, plant or shrub, that bears an acrid, bitter, poisonous fruit. I refer to the bitter almond from which has come the lucious peach that graces our tables of today. What made the change? Climate, selection and culture. Go to the South American States and you will find a tropical plant growing there bearing its seed on the tassel, something like our sorghum or broom corn, and you have the origin from which came the delightful corn that so blesses our farms and our country today. What made the difference? My answer is, climate, selection, culture.

Go with me to Southern Europe, ten centuries in the past, and I will find there a strange looking human being, clad in the skins of beasts, with a quiver at his back and a bow and arrow in his hands, and the beast he has slain for his eating thrown across his shoulder. Follow him across the glades to the foothills and on to the mountain where he meets in his cave his mate and little ones, little removed from the bear that growls upon him from his native heaths and crags, and you have the origin of the polished Englishman of today. What made the change? I answer, selection, education and religion.

Now, I desire for a little time to present the farm animals to your consideration under the limitations that I have named. And I want to say in the beginning that this is important because it lies at the foundation of all successful stock breeding. These types may be changed under the conditions I have already named, so that you may produce the animal best suited to your profit and to your comfort if these laws are carefully respected.

Now, I want to consider the horse first, and if there is any horseman here who can correct my information about the origin of our domestic horses, I shall be glad to receive it; my reading tells me that all the horses that we have in our domestic use today originated with the ancient Arabian. I remember of reading in my schoolboy days, in our school reader, of the Arabian who rode his beautiful mare into the English camp and was offered 1,000 guineas for her. He rejected the offer, and it was increased to ten thousand, then to fifteen thousand guineas until it became tempting, and when the temptation began to be felt he put spurs to his beautiful mare and was soon out of reach of temptation. Now, I have thought while reading that history that for the times and the uses to which the horse was put then that was the best type of horse—as good a type at least as the world has ever had.

When the horse was introduced into Europe it was for saddle purposes alone. The conformation and characteristics of the horse were only suited to horseback riding; and for centuries he was not thought of as a beast of burden. He was never thought of for any purpose except that named, but as society proceeded and he was found to be better in some regards for some domestic purposes than the ox, they began breeding to a different type, and by selection, possibly climate in some regard, and education and feeding, they produced, after hundreds of years of effort, the splendid Clydesdale and the grand Percheron as well as the English racehorse. All from the same origin. I ask, what made the change? Selection, culture and feeding. Even the little Shetland pony, I understand, had the same common origin with the other horses, but owing to his climate, his scarcity of food and his selection he has been made the pigmy he today is. Only this last fall on the state fair ground I saw two horses, each claimed by the owner to be five years of age, both from the same origin. One weighed over 2,300 pounds, while the other weighed 262 pounds. They stood side by side, and I looked upon this wonderful change in the type, and all that within the limit of man's power.

Take, if you please, the cattle in our herds. All of them, I understand, with perhaps a single exception, originated among the long horns on the pampas of Spain. Every kind of the cow breed that we have had its origin there. The world needed different types for different purposes; the world needed the dairy cow. The fact is that dairying is perhaps the oldest of the cattle industry, for I read of it way back in the times of Abraham and all the years since. But the best type of the dairy cow, however. lest I forget the exception I want to make, is the Jersey, the hated little Jersey. I do not know where she originated; do not know that she has any origin. Possibly, like "Topsy," she "just growed"; but anyhow she is here. Now, by selection, by education and by feeding these grand dairy types, such as the Holstein and all of those types have been produced, but it required hundreds of years of culture and effort to reach the grand status that the dairy stock of to-day occupies. Now, then, the world needed the flesh of the cattle for eating, and from the same origin, the long horns of Spain, they have produced the magnificent Shorthorns, the splendid Herefords, the unsurpassed Polled Angus, and all the other of the beef breeds, and we are reaching a point of excellence such as the fathers hundreds of years ago doubtless never dreamed of. Now, what, I ask you, made this change, all coming from the some origin? I answer, selection, education and feeding. I know that some writers are wont to put climate in this. I do not choose to do so, because we find in Canada just as good types as we find among us here. We find in Scotland on the hills of Inverness just as fine types as we find in the south of England or in France. So I shall not admit in this discussion today the question of climate at all. But, understand, these types have been reached after hundreds of years of effort. I want to make a point there, for I shall use it later on. What may we not reach in the future as we consider this question? Have we reached the limit of improvement in either the dairy or beef stock? Will not the next hundred years record as great improvement as the last hundred years have? Does anybody here believe that forty-six pounds of butter and eighty-five pounds of milk, the one per week, the other per day, is the limit of the dairy cow? Does anybody believe that one thousand eight hundred and ninety pounds for fifteen months old is the limit of the beef steer? Nay. You believe as I believe, that there is still excellence to be had that we have not yet attained, and that question is before the American farmer and breeder.

Now, I shall not speak of the other domestic animals and thereby take your time, but will allow these two to illustrate all the others, and I want to say that a type of excellence can be reached and will be reached by selection that will eliminate in a very large degree the objections of the original stock.

Heredity, under the selection of intelligent breeders, will eliminate, I haven't any question, in the future, many of the objections of today as they have in the past. Take, for instance, the old long horns. You have probably seen the Texas steer, great, immense long horns. Some of you may have been at Spanish bull fight, for aught I know, and you may have seen the immense sharp horns that are used in battle by those Spanish cattle all having this origin. I remember seeing a pair of horns in Mr. Swift's office in the city of Chicago once that measured more than four feet from point to point, and as they stood with one point at my foot the other rested upon my shoulder. And yet from that we have produced the splendid Shorthorns, and even the no-horn cattle of today. Now, I want to make a statement here that I make with some degree of diffidence, because I know it is a question. But I understand from the old Scotch breeders of the past that the splendid hornless Scotch cattle came the same way. If you could breed the four-foot horn down to the horn of the Shorthorn, why not breed it clear off. Now, I am frank to admit that you can not breed any natural conformation from the animal. I remember that in my boyhood days we used to cut the tails off of lambs. I think that sheep breeders do the same today and yet they keep on breeding tails just as they always did. I remember of reading somewhere once of a Frenchman who believed he could breed a leg off the dog and make a three-legged dog, and so he took the pups at birth and took a leg off of each and bred them, and he kept on until the fifteenth generation, and still had four-legged dogs as when he started. But not so with horns. A horn is an excresence and was designed for the animal originally as a weapon of battle and means of defence against wild men and wild beasts; but that animal has now come into domesticity and is under your care and protection, and doesn't need the horn. And as the Lord Almighty takes from us everything that we won't and don't use and don't have any use for, I shouldn't wonder if within the next hundred years we will be without horns on our cattle. I know that is not just according to the veterinary notions of today, but then I have a right to some notions, inasmuch as I propose to do as much prophesying as I can on the safe side.

Well, now, I propose to discuss just briefly two or three things that I think are needful along this line. In the first place, I want to lift my voice here against cross-breeding. I have been in the habit of getting into trouble now and then, and I am in danger of doing it here. I want, however, to say that cross-breeding is the bane of the breeding of domestic animals in our country now, and every feeder of beef stock who has halfbreed Shorthorns and Jerseys knows what I mean when I say that. No man can profitably feed a cross-bred animal, in cattle at least. I do not know how well he may do it in sheep or pigs. I am not a breeder of either, but I want to lift my voice against the entire system of cross-breeding as pernicious to the American farmer. I do not believe it will conduce to the good of the production of the country in whatever sense you may take it.

What do four hundred years' selection, education and feeding mean if it doesn't mean excellence in type? And why? Shall we, because of the foolish notion that we can produce the dual animal, cross-breed and get practically nothing? Now, is there a gentleman here who believes that he is going to do a good thing by cross-breeding? Let me ask him to continue it to the third generation and see what he has—a mongrel that the trade will not have—that is unsightly to the breeder and that is practically worthless to the farmer. I therefore wish to say before passing from this, let there be pure breeding.

Now, you ask me what is there in pedigree. I answer, there are two things only in a pedigree. First, an assurance by reputable breeders of the purity of the stock; second, there is pointed out a list of performers that have won excellence in the past and that assures heredity to the stock you get. It is only that and nothing more. The pedigree can not give you an individual. Therefore, by all means, have the stock pure. In the second place you want the best type of the kind you are breeding. In fact, I would like to say that every breeder ought to know what he is breeding for. If he wants a dairy animal he doesn't want any beef stock in it. If he wants a beef animal, he doesn't want a cross with any dairy stock, because it will not succeed. And the man who wants a cow that will give him seventy-five pounds of milk a day and make him twenty pounds of butter a week and do that for fifteen years, and then when he is done with her sell her at sixteen hundred or eighteen hundred pounds for beef, is fooling his time away. He cannot get such an animal, but if he does, it will not reproduce itself once in a thousand times. I believe that what we want today is to get the best type, and therefore what we want is, first, pedigree, the type next, and I am not sure but I am stating it right when I say that type ought to be first.

Now, living in my vicinity is a gentleman who had two mares some years ago. He only needed one. One was a splendid type, well formed, well dispositioned, a beautiful animal. The second was a halfbreed Percheron—a mongrel. The head was longer than a flour barrel, the neck put on upside down, sway-backed, low headed, sluggish, a vicious animal. He must keep but one, and he wanted to keep one for a breeder. I insisted upon his selling the ill-conditioned one and keeping the splendid one. He said he would make the difference in the price, and therefore he would keep the ill-conditioned one. He offered one for $100 and the other for $125. And he has oppressed that community with an ill-conditioned, ill-shaped, practically worthless colt every year for five or six years. He would better have given the ill-conditioned one away than to have taken any price for the other. It would have been money in his pocket, and so, my friends, will be in yours. Select the type of what you want.

When I speak of the best type I mean more than physical conformation. Physical conformation is good in its place, but there is something beyond it. Now, I am sure that you may entail disposition. I believe it is hereditary; in fact I am convinced from my observation and experience that ill-temper, ill-condition, is transmissible in your stock. I remember when I was a lad a near neighbor of ours had a splendid young horse. He was a fine type of the Southern Eclipse, black as jet, and the Colonel was so proud of him that he would not allow him "broken," as he called it, until he was five years old. I prefer the word tamed. He ran wild. He had an ancestry that was very vicious. So he decided that he would break him, and the first thing he did was to throw a man off and injure him badly; then the hired man on the farm tried it and got two arms and a leg broken—nearly killed him. Then he sent for a professional, and he got thrown off and pretty nearly as badly injured, and then the old Colonel said that he would break him himself, and he went out and tried it and got thrown off, had his wrist put out of joint and his nose half torn off, and then he offered me a dollar, lad as I was, to take him out and shoot him, but the taking out was where the rub came. And while I pleaded for his life I heard that there was a horse tamer coming into the community, and pleaded that he might have a chance. The Colonel said that if I would take care of him he might try. So I fed him from the loft and watered him from the loft, and he got all his blessings from above. They came down (laughter). After awhile the horse tamer came and was delighted to find that we had such a vicious animal. And we all started just after dinner down to the barn. Finding a lot of boys training after him he said, "Go back, or else I will not go to the barn at all." There was nothing to do but to go back. He went in there and began cracking the whip and scolding and ordering about, and presently, after about eight or ten minutes, the door flew open and out he came, the horse trotting after him, with no halter or bridle, and after trotting down a little piece he turned and faced him and said "Whoa," and the horse stopped like a statue. That was the clearest case of hypnotism I ever saw (laughter). And that was Mr. Rarey, of Groveport, Ohio. He handled, even drove him that afternoon and turned him out, and the next performance of note that that horse ever gave was to kill a man. Then he was shot. Now, I have told this story that I might tell another one. The same Mr. Rarey was in England a year or two afterwards, and the Queen of England had a splendid racehorse, said to be the best bred English racehorse in the world, but he was a vicious animal. It was nothing for him to do to take a groom or two for breakfast, and the Queen did not like having her realm depopulated in that way and ordered him killed. Mr. Rarey, however, made application to try his hand. He went through about the same performance as with the one I have just spoken of, and even drove him in the Queen's presence the same afternoon that he got hold of him. He turned him over well broken, and his next performance was to kill another groom, and then she gave him to Mr. Rarey. That was "Old Cruiser" that was brought here to Groveport, and for fifteen or twenty years that horse was bred in this community round about here for a distance of forty or fifty miles. And to my knowledge, from my observation, and from the testimony of physicians in those days about the city of Columbus there were more people killed and injured by vicious horses than there ever had been before or since, and some of those physicians told me that in nearly every case the ancestry was traced back to "Old Cruiser." Criminality, absolute criminality in the animal seemed transmissible, and so it may be in nine cases out of ten in your domestic animals. And I will venture to say that the animal called man is not exempt from the same rule.

Now, I want to speak briefly about deformity and disease, and while if there is a veterinary in my presence he may be inclined to deny my assumption that disease is at all transmissible, I want to say to him when driven to the wall he will admit that *conditions* of disease are transmissible, and that it seems to me is a distinction without a difference. But I want to say this, that if conformation is transmissible, then why not the conditions that are susceptible to the attacks of disease? Now, it occurs that we have a mare go blind on the farm. We say she won't sell for anything; we can't use her much. We will make a breeding animal out of her. The result is that we have a whole lot of blind horses, or horses that go blind early. We can not put glasses on them or they might not go blind quite so soon as they do. And so with all other diseases—spavin, ring bone, and things of that kind—that render them practically worthless for all other services, and they are put to breeding. I heard a gentleman in Tuscarawas County last winter say that he had been buying horses for forty years, and that the time had come when he could scarcely get a well-formed, sound animal for love or money in all that country, because the ancestors were deformed and diseased animals. And I want here today to lift my voice against all such breeding as that. May I not go a little further and say that it might be well to apply the same rules in our homes? I know that when you come to the question of marriage in the human family, that then we stand in front of the great question of love, the falling in love and all that kind of matter, and I do not wish in any sense to interfere with it, but I would have the people of the State of Ohio look well to the ancestry; look well, as insurance companies would, to the ancestry. If you have pulmonary consumption in your ancestry no reliable insurance company will take a risk on your life. If you have any diseases that may in any way be hereditary they bar you from insurance. Why not exercise the same care in our homes? And I speak of this with considerable timidity, for the reason that I myself am personally an example of the same thing. I was once the husband of a beautiful woman, the father of five splendid little children. They were in all regards, it seemed to me, all that a husband or father could wish, and yet hereditary consumption has taken them from me until I alone of the seven am left, and while I do not regret my relations with that splendid woman and those good children, yet I would have you look to the ancestry before these connections are formed if possible, for it may save premature decay in your home and many broken hearts. And I will venture to say one other thing before I pass, and that is that in my judgment the best way to eliminate crime from the animal or human kingdom is to breed it out. You can not very well legislate it out. Legislation has been tried for hundreds of years, and today is just about as much of a failure as it has ever been. The proverbial "black sheep" in that good household is simply an outcropping of criminality in the ancestry, and I think the best way to get rid of disease is practically breed it out. The doctor can help you when you get sick, but he can not stand between you and disease as regard for the laws of heredity would do.

Now, I think I have occupied time enough. I have simply this by way of illustration, and will conclude by calling attention to this question of care in education because much depends upon the education of the farm animal as well as upon the child. Education, I do not like this notion that many farmers have of "breaking" animals. Break its will. Take its will from it before it will have regard for your will. I oppose that. Let the education begin early. You can not begin very much too soon in the education of the animals. You know it has been said that if you want to educate the boy right you ought to begin with his grandfather. Well, just apply that to your domestic animals and begin with the great-great-grandfather. Let that education be that of kindness and never of brute force. I want to eliminate from our entire farm curriculum this notion of breaking things. I want to say that whenever you begin a battle with an animal you have started the education toward criminality and you will reach there probably before you are done. If you want an animal perfect in disposition and perfect in education, let that education be by such kindness as a good man would give to his children. I doubt if the rod ever was valuable in the education either of a child or a beast. You may have a lazy animal that my need reminding of delinquencies by the touch of whip, but I would rather let somebody have him who needs a lazy animal. I surely would not want him for breeding purposes. The rod, the club, the oath or loud talking never ought to be found in the education of beasts. Now, then, I am met right here with this old objection: What about us high-tempered people who can not control our temper? You know we so often get behind that excuse as an apology for beating and abusing our domestic animals, "I can't control my temper. I wonder how we control our disposition to steal our neighbor's goods. Why, it is because of the sheriff and the penitentiary. The motive is higher, and we are led to a life of honesty because of that higher motive. Some years ago I had business with a gentleman, and I went an early May morning to his residence. He came out to the roadside and chatted with me, and after transacting the little business, he was telling me what he thought to be a very good story, and I was patiently listening. After awhile his little seven-year-old daughter came out neatly dressed, hair neatly combed, nicely washed, the bloom of health upon her cheek, more beautiful far than the rose that bloomed at her elbow. She came down and said sweetly, "Papa, breakfast is waiting." He didn't wish to be disturbed, and he turned with a scowl on his face and with an oath sent her back into the house. I said to that man, "Sir, there isn't money enough in your town to hire me to treat my little girl that way." "It is my temper," he said; "I have no control over my temper." I said, "You ought to let somebody have that child who can control his temper." During that week I saw a great big man stick his fist right under his nose and call him a dirty scoundrel, and I never saw a man in my life better able to control his temper than he was then. He could abuse the little child that God had given him to love and protect, and lose his temper with her, but he could control it in the presence of a man who was big enough to wipe up the street with him. And I assume that the man who will abuse his dumb brutes is both a tyrant and a despot. Let the training be such as will make the best education, and that education under such conditions will become hereditary. I thank you for your attention. (Great applause.)

The President: We will now devote a few moments to the discussion of this question.

There being no discussion the President introduced Professor W. R. Lazenby, who delivered an address upon "Structure and Varieties of the Apple."

Mr. President and Gentlemen of the Institute:

In order to make improvements we must have ideals. The sculptor who works with a mallet and chisel, if he is a true artist, has in his own mind clearly outlined the picture that he expects to cut from the block of marble. The intelligent breeder of domestic animals has in his mind a pattern of an ideal animal toward which he is aiming to bring his flock or herd. He does not expect to reach his ideal at once. He may never hope to attain it, but by patient, persistent effort he is constantly approaching his ideal. The horticulturist, the grower of fruits and vegetables, must likewise have ideals, and unless he has pictured in his mind a pattern, or a type of the fruit or the vegtable that he is seeking to improve, his progress is not likely to be marked. We have heard from the preceding speaker of the many factors that go to make up the improved types of the products of our farms. In general, I think, it may be said that variation and heredity are the two most potent factors. By the law of variation we expect the progeny of our animals, of our fruits and vegetables to vary more or less from the parental type. That variation may be directly in the line of the improvement we desire. Now the law of heredity comes in and transmits these qualities that we are seeking to develop, often emphasizes them to succeeding generations. It seems, therefore, that these two things, nature's law of variation and nature's law of heredity, are the most important factors in the way of improvement. We do not expect, of course, that all of the good characteristics or all of the good qualities will be found in any one variety. It was the poet Goethe who said that "in order to gain in one direction nature is forced to economize in another direction," and I think that those of use who have been somewhat observing have seen this great law of compensation in nature. We know, for example, that an abnormal development in size—I do not mean good size, but abnormal—in fruits and vegetables is almost invariably associated with diminished flavor or quality. We know that early maturity—extreme early maturity I am speaking of—is almost always associated with a weakening of the reproductive powers, or with a weakened constitution or a shortening of life. We know an untimely coloration in our fruits is usually associated with some disease. We know also that the hectic flush in the cheek, often taken as an evidence of health, is not infrequently associated with consumption. And so we know that light color is generally associated with physical weakness. Many of these points, I am sure, are familiar to all of you.

What now do we demand in our horticultural fruits—to confine ourselves to them. Have we any conception of what is demanded in an ideal fruit?—an apple, we will say, or a pear or grape? We do not, of course, expect to have all the virtues in any one variety of those fruits, and all to their highest extent, but it seems to me that the time has come when every intelligent grower of fruits should not be satisfied with a variety unless it has some marked qualities or characteristics. For some time I have felt the need of a better standard for judging our fruit, something like the scale of points that our most advanced stockmen use so successfully. We have very little in this direction in horticulture.

Now what would be the advantange of having a well defined scale of points for judging fruits? Well, in the first place we might determine the value of new varieties a little easier and more satisfactorily than we now do in our haphazard way. Some of us who are sometimes called upon to judge fruits at our fairs and expositions would find some such "scale of points" of very great use there; and then if we could have a scale of points for our commercial fruits it would be a great stimulus, it seems to me, to those who are endeavoring to originate and perfect varieties. There are some other reasons, but I think these are sufficient to show that if we could have a good scale of points for judging fruits, like the apple, the grape, the strawberry, and the more important commercial fruits, it would be a step in advance in horticulture.

Now before calling your attention to the scale that I have prepared let us look just for a moment at the structure of the apple; and I shall confine what I have to say to the apple. I am always interested in the structure of this fruit. It seems to me that our pomaceous fruits are unique in point of structure. You know the fruit follows the blossom. The flower on our fruit tree is always a forerunner of the fruit. The showy part of that flower disappears in a few days. It beautifies, it almost glorifies, our orchards and gardens for a short time, but that showy part of the blossom soon withers and falls away. The essential part of the flower remains and develops, provided it has not been injured and has been properly fertilized, into the pear or the apple or the quince, as the case may be. In the case of the apple, the part that develops is not the ovary of the flower alone, as in the case of most of our fruits, such as the peach, and the plum, and the cherry. In these it is simply the ovary of the flower that develops and becomes edible. In the case of the apple, however, the ovary simply develops and forms what is known as the core. Those papery carpels surrounding the seed in the centre of the apple are all there is of the ovary of the flower. But what is this edible portion? Why, it is partially the stem, the receptable as the botanists call it, on which the flower is borne and which envelops the true ovary within. This is shown in many varieties of apple by a rather faint greenish line at a greater or less distance from the core. Then the larger part is simply the calyx or those little leaves that surround the flower. They develop and form the edible part, the greater part of the apple. (Turning to the chart.) Now here we have a scale of points for the fruit. Just take the apple, disassociated from the tree. These are divided into external points and internal points.

SCALE OF POINTS FOR JUDGING APPLES.

External Points—	Skin and surface	20	
	Color	10	
	Shape	5	
	Size	5	
		——	40
Internal Points—	Richness	10	
	Flavor	10	
	Texture	10	
	Core and seeds	5	
	Cooking qualities	10	
	Keeping qualities	15	
		——	60
			100

In the above scale "skin and surface" is placed first and twenty points are allowed, because most of the blemishes of the apple are seen on its surface. In the term "surface" is included the basin and cavity with eye and stem. The skin of the apple usually forms a part of the waste and should be as thin as possible, at the same time being sufficiently tough to prevent breaking or bruising in ordinary handling. A tough, bright, smooth skin is also desirable, in that it can the better resist the attacks of insects and fungi. Although color is a character liable to variation, it takes a high rank in pomology and is oftentimes of greater value in determining the salableness of a variety than form, size and richness taken together.

With our present standard of taste in color, a bright red seems to be the favorite and there is no reason why our ideal apple should not conform to this demand. Form is one of the most permanent characteristics of the apple. All things considered, the round or globular form appears to be the most desirable. Such apples pack more closely and are less liable to bruising than apples that are oblate, conical or oblong.

Just how large the ideal apple should be is not easy to determine. For general purposes an apple weighing about eight ounces is perhaps the most desirable. Under some conditions apples not to exceed five or six ounces may be preferred, while in some markets those of a pound weight each would not be considered too large. Whether the ideal size expressed in weight be a little more or a little less, it is important that the size be uniform. In commercial orcharding, where there is much variation in size, grading is found necessary.

By richness in fruit we mean a large amount each and the proper proportion of sugar to acid. The average amount of sugar is about 8.5 per cent., the average amount of acid is about 1 per cent. Should there be a small amount of both sugar and acid the result would be an insipid apple. Where there is a proportionately large amount of acid to sugar, we have a sour apple. A proportionally small amount of acid to sugar gives us a sweet apple. For the average taste, apples like the Yellow Belleflower and Grimes Golden have about the right proportion of sugar and acid.

Flavor is a quality separate from the taste given by sugar and acid. Some varieties of apples possess a marked and agreeable flavor which adds much to their value. A well matured Northern Spy is an example of a good flavored apple. Flavor and odor appear to be closely associated and both are due mainly to a volatile oil. Our organs of taste and smell are so intimately related that it is often difficult to separate the impressions we receive through these senses. A crisp, tender-fleshed apple is always desirable, yet this tenderness should not be associated with sponginess and softness. The flesh of an apple should be like good butter—firm, well-grained and melting.

The core should be small and the seeds few or none in an ideal apple. Besides being small the core should be regular in size and well closed. A large, open-cored apple is undesirable from every point of view. Since we do not depend upon seeds of the apple for the reproduction of the variety, these may be dispensed with. At all events they should be small in size and few in number.

We do not know definitely upon what the cooking quality of an apple depends. It seems to be associated with two things: an acid juiciness and an abundance of pectose or jelly. Some apples can be cooked fairly well in one way and not so well in another. Certain varieties of sweet apples that make a very insipid sauce are quite appetizing when properly baked. Although we cannot state confidently upon what the cooking quality of an apple depends, we know it is one of the essentials of an ideal apple and can be readily determined by trial.

The quality of long keeping is one of the greatest virtues of the apple and makes it the world renowned fruit of temperate zones. The keeping quality of an apple does not depend altogether upon its firmness, although as a rule the firmer and more solid the apple, the better it keeps. It seems to be an inherent quality which varies in different varieties, and in the same variety, depending largely upon latitude and soil, climate and other conditions.

The requisites of an ideal apple which have been briefly discussed are those pertaining to the fruit alone. To have an ideal variety the tree must also be considered. For this the following scale of points has been used:

Productiveness	40
Vigor and healthfulness	20
Hardiness	10
Uniformity in size of fruit	10
Uniformity in maturity of fruit	10
Adherence of fruit to tree	10
	100

When we have produced an apple that shall possess in the highest degree all of the qualities I have enumerated we shall not fall far short of our present ideal. When the real shall have reached the ideal here outlined, other qualities will be demanded. The standard of perfection in the apple as in all products of human skill and labor is constantly advancing. Each step in advance points to yet higher and better things within our power of achievement.

According to the above scale of points the following may be regarded as among the best varieties of apples for Ohio:

SUMMER (6).

Benoni.
Early Harvest.
Early Joe.
Red Astrachan.
Sweet Bough.
Yellow Transparent.

AUTUMN (12).

Bailey Sweet.
Cooper.
Duchesse.
Fall Pippin.
Fameuse.
Gravenstein.
Maiden Blush.
Ohio Nonpareil.
Porter.
Rambo.
Wealthy.
Western Beauty.

WINTER (24).

Baldwin.
Belmont.
Belleflower.
Ben Davis.
Bentley Sweet.
Fallawater.
Gano.
Grimes' Golden.
Hubbardson.
Jonathan.
Northern Spy.
Roman Stem.
Rome Beauty.
R. I. Greening.
Roxbury Russet.
Smith Cider.
Stark.
Sutton Beauty.
Talman Sweet.
Wagener.
White Pippin.
Willow Twig.
Winesap.
York Imperial.

Mr. O. W. Ballou: The Professor spoke of adherence to the tree. Which of those varieties will adhere to the tree longest?

Professor Lazenby: I am not quite sure. The Northern Spy adheres very well. The Baldwin does not drop very freely. The Willow Twig is one that holds very well.

Mr. Ballou: My experience was not very satisfactory in that particular. I had a very full crop of apples but when I came to gather them they were nearly all on the ground.

Professor Lazenby: What varieties do you have?

Mr. Ballou: Oh, I have several varieties.

Professor Lazenby: Of course the adherence of the apples depends very largely upon the vigor and healthfulness of the tree. If the tree has been weakened by drought or disease your apples are more liable to drop. If they are affected by insects they are very liable to drop. We often speak of these apples as "windfalls," but it perhaps would be more proper to speak of them as "wormfalls."

Mr. J. P. Hine: I would like to ask Professor Lazenby a question about ealy productiveness, early varieties. If we are going to set out trees we don't like to wait a lifetime for fruit. I would like to ask what are some of the early varieties, the newer varieties, especially?

Professor Lazenby: Well, the Wealthy is a very early bearer. It produces sometimes in the nursery row. The Wagener is a variety that fruits early, but these two varieties I think do not live as long as many others.

Mr. Hine: What about the Baldwin and the Ben Davis?

Professor Lazenby: I think if they are grown in southern latitudes they fruit very much earlier than they do farther north.

Mr. Hine: I mean trees for early production.

Professor Lazenby: One thing in that line has been advocated very strongly; and that is setting the later fruiting varieties a little greater distance apart and setting between them what are called "fillers," that is, varieties that fruit earlier and don't live as long, varieties like the Wealthy and Wagener and all that class. That is the plan that is recommended by many.

Mr. C. W. Montgomery: I would like to ask if that yellow Belleflower was raised in this community?

Mr. Starkwell: That was raised at Prospect, Marion County, Ohio.

Mr. Montgomery: How do you keep them until this time of the year?

Mr. Starkwell: I have a very ordinary cold storage building with four thicknesses of boards, two on the outside and two on the inside, with two thicknesses of tarred paper. At night I throw it open, but in the daytime keep it closed. I have Ben Davis and Belleflower apples, but, of course, I am a Belleflower man, though I grow Ben Davis for money.

Pres. Farnsworth: You raise Ben Davis to sell and buy Belleflowers? (Laughter.)

Mr. Starkwell: No, I grow my Belleflowers.

Pres. Farnsworth: I have some Belleflowers in my cellar that I bought but I can not afford to raise them.

Professor Lazenby: Why not? Because of the price? Mr. Sutton, one of our large dealers here told me this morning that he is selling Belleflowers for four dollars per barrel.

The President: No, but simply because they are not productive, but this year they seemed to be unusually plentiful, but I would hesitate to recommend to anyone the planting of Belleflower apples for commercial purposes unless he knew they were productive.

And thereupon the Institute adjourned until 1:30 p. m.

AFTERNOON SESSION.

Promptly at 1:30 p. m the President called the Institute to order, pursuant to adjournment, and asked for the report of the Committee on Resolutions.

Thereupon Mr. S. H. Todd, chairman of the Committee on Resolutions, made the following report:

REPORT OF COMMITTEE ON RESOLUTIONS.

Resolved, That we heartily endorse the present game law of Ohio and that we believe its repeal would be prejudicial to the best interests of the farmers of the State.

Resolved, That we endorse the action of the last session of the Legislature in its wise improvement of the dog law, thereby giving a much needed protection to the wool growers of Ohio.

Resolved, That we take pride in the rapid growth and successful management of our State Fair and the system of Farmers' Institutes, and commend both to the liberal patronage of the agriculturists and horticulturists of our State.

Resolved, That we highly appreciate the action of the General Government for the interest now being taken in Free Rural Mail Delivery, and we urgently request the extension of the system to the entire country as rapidly as is consistent with public policy.

Resolved, That we heartily endorse the work of the Ohio Experiment Station and urge upon the farmers of the State the necessity of giving it their unanimous support.

We would also respectfully call your attention to the rapid growth of the Ohio State University under its present management.

Resolved, That inasmuch as the growth of the wool interest of the country is greatly injured by the use of shoddy, therefore we urge upon our law makers, both State and National, the necessity of advanced laws looking toward the purity of woolen goods.

Resolved, That we give the Grout Bill, now pending in the U. S. Senate, our unqualified endorsement, and respectfully request our Senators, Hon. J. B. Foraker and Hon. M. A. Hanna, to use their best endeavors to secure its enactment into a law at the present session of Congress, and that the President of this Institute be authorized to forward a copy of this resolution to our Senators as soon as possible.

Resolved, That we extend the thanks of this Institute to Pres't W. W. Farnsworth for the courteous and efficient manner in which he has presided over this body;

To Secretary W. W. Miller for his kindly interest as manifested in preparing for this meeting;

To the State Board of Agriculture for courtesies shown us;

To the Male Quartette from the Otterbein University for their excellent vocal music, and to all others who have in any way contributed to the success of these meetings.

S. H. TODD,
O. E. BRADFUTE,
JOHN BEGG,
LOWELL ROUDEBUSH,
Committee.

The report of the Committee on Resolutions was unanimously adopted.

The President: We will now listen to a paper by Mr. Robert Hood, of Cedarville, Ohio, subject: "Rainfall stored, fertility increased."

Mr. President and Gentlemen:

This subject is not only a new discovery, but will prove, in my opinion, the basis of the most successful agricultural management. Providence has stored up the resources incident to man's need—fuel, oil, metals, water, air, soil, subsoil. The soil and subsoil are portions of the crust of our world, decomposed by the action of the elements thereon since the dawn of the third day of creation which marked the advent of the vegetable kingdom.

Soil conditions and management to effect the best results now is and will continue to be, perhaps, the most important problem before the agricultural engineer and practical farmer for solution. With increasing population great economic questions in production and consumption are forced to the front. In the boundless field of agriculture, the most important, the most ancient, most honorable occupation of man, new revelations and improved methods are forced upon us.

In the soil and subsoil as well are stored up the elements of fertility, the plant food of the ages. The soil in addition to the elements contained in the subsoil contains humus, so called, a latin term for ground. Humus is vegetable matter decomposed, which, by absorption of oxygen, turns black and porous. In it air, water, action of heat and evaporation, life, myriads of microscopic organisms, decay and disintegration of plants and soil particles are activities and properties incident thereto.

All things begin with the soil and at last all things come back to it; it is the cemetery of the ages, the resurrection of all life. In proportion as the elements of fertility, the phosphoric acid, nitre, potash and humus are abstracted, the predominating elements, alumina, silica, and iron, assert themselves, the soil becomes thin, impoverished, capillary action fails, the growing crops languish. The soil then becomes obdurate, indurated, too wet at the surface in springtime, while delay in evaporation leaves it cold, lifeless, and lumpy when plowed.

Water is the medium by which plant food is conveyed from the soil and assimilated by plants and growing grain. Its storage in the soil to effect the best results is a very important problem. Hence the two grand divisions of my subject: rainfall stored, fertility increased.

It was on a large farm in Eastern New York where the soil had become indurated and impoverished, that we began experiments that resulted in tripling soil depth, in water storage and in increased fertility. Among the results realized by the experiments are: To render sterile lands fertile by breaking up subsoil; to deepen and improve the soil; to liberate plant food stored and utilize the same; to store surplus rainfall in the soil, increasing capillary action, increase productiveness, insure successful seeding to permanent pasture and render land fit for earlier cultivation in the spring.

By supplying air and moisture, with the mineral elements in the soil and subsoil the proper temperature and mechanical conditions are insured.

Storage of film or capillary moisture can not be too great; water must not fill the pores of the soil within the limits of plant rootlets, otherwise corrosion ensues. Let us suppose a six-inch mellow soil to be increased to the depth of eighteen inches, then its increased film storage capacity is nine hundred and fifty tons of water per square acre. This form of moisture is independent of gravitation and travels freely in all directions. Dip a cube of sugar into a spoonful of water, a small percentage of the water will in a moment pass throughout the mass as film water. Pulverize a similar lump, filling the spoon, and nearly an equal volume will be held as film water without overflowing the spoon.

Film water transports plant food from remote spaces. The more the soil is pulverized the more soil grains there will be, and the greater the surface to hold film moisture. Suppose we place the same weight of lumpy, hard soil and fine soil in two different vessels, as in figure 1. The film moisture in the tube for fine soil

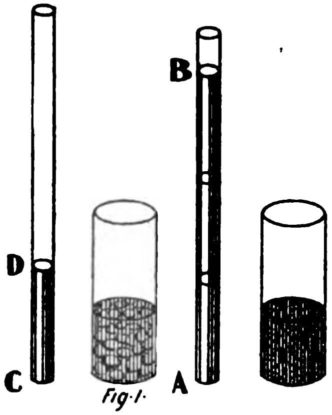


Fig. 1.

(AB) will be three times as high as in that for lumpy soil (CD). The reason why one holds three times as much film moisture as the other is due to the increase of surface that comes by dividing a coarse, lumpy soil into fine particles. One may represent the hard, lumpy soil of the careless farmer, the other that of the careful, prudent farmer.

The soil is a laboratory. Standing water is a great absorbent of heat; heat is thereby lost to the soil, which becomes cold and lifeless. The water that is evaporated from the soil absorbs as much heat as the same amount of water evaporated from a vessel over a fire. The measure of this fire heat is the measure of soil heat lost by evaporation of standing water. Film water being held by the fine soil is retained in the soil and in absorbing heat warms the land. When water is stored in a deepened, improved soil, film water will travel from its surface in all directions from particle to particle, the tendency being upward. Being thus stored beneath the rootlets of growing crops, the roots will be corroded, but the best result will follow. Standing water stored beneath the rootlets of plants or grain will then become available as film water or moisture in dry weather, being there kept pure ready to be utilized by capillary action.

We will now consider and apply one of the most remarkable laws in natural science, which if not called to our aid operates as an enemy to our success—a law of heat in water, of the greatest practical utility in agricultural chemistry as well as in nature at large, to wit:

Water contracts with the fall of temperature to 39 degrees, where it attains its maximum density; after which, by further cooling, it greatly expands, rising to and remaining at the surface of land by reduced specific gravity. At 32 degrees it is crystalized into ice, with a still further sudden increased expansion. Let us take a glass bulb (figure 2) with tube (BC) filled with water. Insert the bulb (A) into a freezing mixture. The water will contract to 39 degrees where its maximum density is reached; after which it will greatly expand to 32 degrees, so as to overflow at the orifice (C). At this point of temperature a sudden greater expansion ensues in crystalization, causing the water to overflow in a jet.

This expansion of water of supersaturation is now held at the surface of the land and converted into an icy, non-conducting surface to the shallow depth of one or two inches on approach of winter. Ice, like water, being a non-conductor of heat, its further emission with further penetration of frost are arrested, by reason of this nonconducting, icy medium. As layer after layer is congealed at the under surface of ice, this law prevents the conversion of lakes and rivers into solid ice and consequent destruction of animal life therein. Frost is the great hammer, so to speak, nature has put in our hands to break up the impoverished soil and indurated

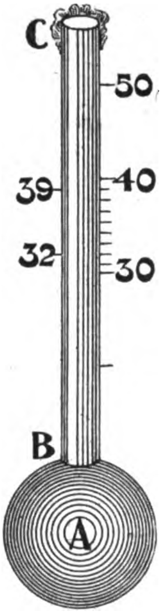


Fig 2

subsoil, making it available to admit oxygen, store water, and liberate and utilize plant food under our process of improvement.

Our problem then resolves itself into this: to avoid the formation of this non-conducting medium at the surface.

At or before the approach of winter all standing water and water of super-saturation must be removed from the surface, that soil and subsoil heat may escape and frost penetrate and do its work for us. By our process soil and subsoil are expanded by operation of the foregoing law in the freezing process. So that in the spring of the year, after our discovery has done its work, the capacity of the soil and subsoil frozen is greatly increased, so that when frost leaves it in the spring, this greatly increased power to store moisture renders the land fit for tillage earlier by at least two weeks, causes standing water in time of great rainfall to disappear, leaving soil and subsoil warm and mellow by heat as well as moisture storage.

Let us now proceed to take a vertical section of land in primitive, unimproved state.

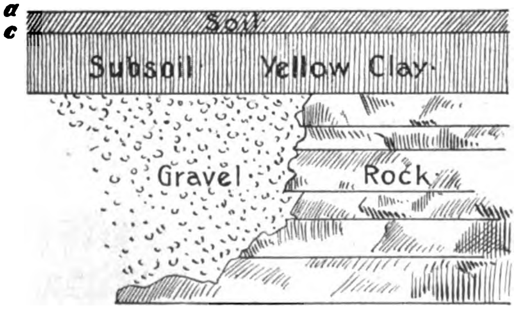
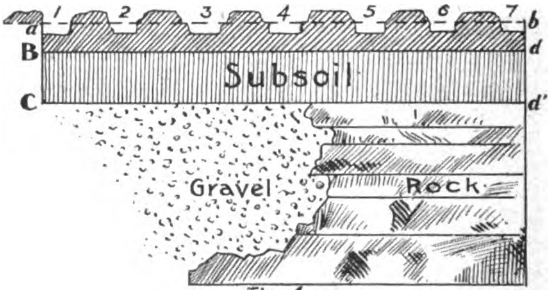


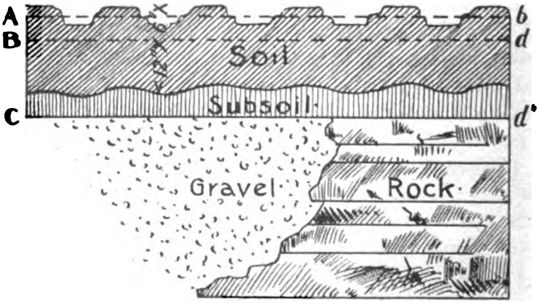
Fig 3.

Suppose a vertical section from the surface downward to reveal the conditions of soil, subsoil, rock and gravel shown in figure 3, and that the subsoil is a compact yellow clay impervious to water. In such a state the soil will become supersaturated and under the effect of contraction and expansion, when the temperature falls to the freezing point, the increased supersaturation at the surface will in effect cover the land with ice or a layer of frozen earth intercepting the ecsape of heat as effectually as a layer of ice.



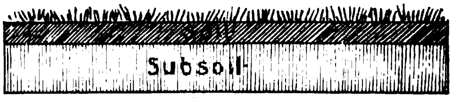
Fig·4

Figure 4 shows the surface soil as operated upon before frosting, under our method of procedure, by trenching, 1, 2 ,3, 4, 5, 6. The practical mode of procedure to improve a field as shown in figure 4 is this: The plow may be set on its middle or direct line draft, the team walking upon the unplowed land, thereby cutting shallow furrows or trenches three inches deep and about two and one-half feet apart. These trenches must be plowed at right angles to the contour of the ground or with the line of slope, so that in excessive rainfall before winter sets in, the surplus water not taken up by absorption as film water and evaporation may pass off readily by these shallow furrows. The surface exposure to evaporation will be now about fourfold greater than on land not so treated, leaving only film water, condition the best for frosting or freezing, and the land put thus in the best possible condition to allow heat of subsoil to escape and frost to penetrate.



Fig·5·

Suppose the winter weather has been such as to freeze down one foot in the trenches, then the depth of soil produced will be AC, or eighteen inches,



Fig·6·

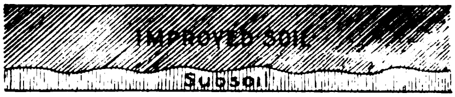


Fig. 7.

in lieu of AB, six inches, as shown by figure 5, and the soils of the natural field and the improved field after being plowed in the spring will appear as in figures 5 and 7, instead of 3 or 6.

The natural, unimproved soil in frosty weather of winter and spring will be found covered with an icy coating or crystals of ice as shown in figure 6. This in successive days of freezing and thawing weather will tear out the tender plants of growing grain or seeding and corrode rootlets, while the new surface of an improved, deepened soil will have stored its water at a depth so great as not to produce any of the deleterious results named.

We have now increased the depth of the soil from six to eighteen inches, increased capillary action fourfold, overcome the destructive effects of freezing out, liberated the nitre, phosphoric acid and potash with other alkalies of fertility locked up in the obdurate subsoil, increased the storage capacity of the soil threefold, and the comparative results on cropping on unimproved and improved land is as shown in figures 8 and 9.

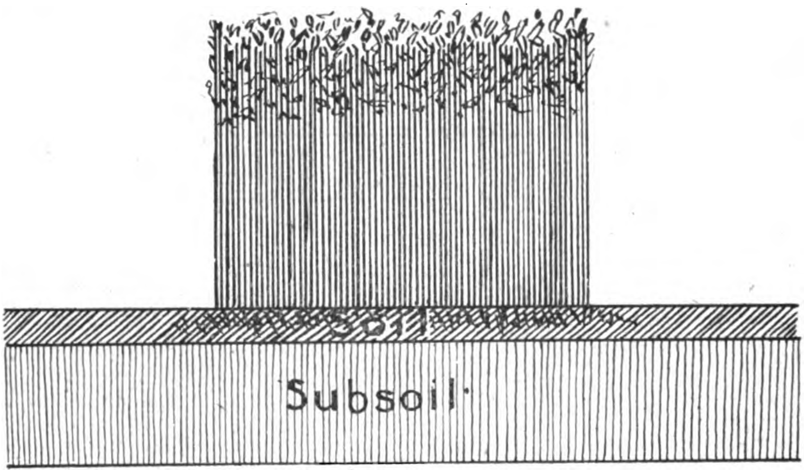
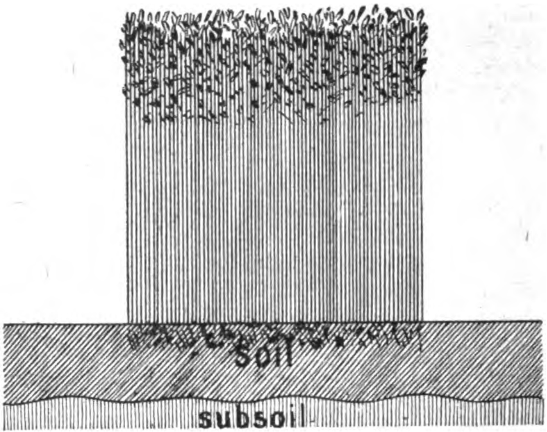


Fig. 8.

The fertility of the land is its power to produce crops. It is determined by three things: the texture of the soil, its richness in plant food, and its available moisture. The texture of the soil is its physical condition. Is it mellow and loose? Is it leachy, or is it cloddy and hard? If in the latter condition its fertility will be indicated by figure 8. If leachy, it is poor. If mellow and loose, its character and fertility are shown by figure 9, improved by our discovery.

Figure 8 shows how the spring crop appeared on a field of ten acres, unimproved, on the author's farm in Livingston, Columbia County, New York, land similar to that of Ohio soil with yellow subsoil, the crop being oats in which straw stood eighteen inches to two feet high. Yield twenty-five bushels per acre, weighing twenty-eight and one-half pounds to the bushel. Figure 9 shows the oats crop on



Fig·9·

same field with soil improved by our great discovery to the depths of eighteen inches. The yield of straw was more than doubled, which the grain yield was fifty-five bushels to the acre, weighing thirty-three and one-half pounds to the measured bushel. Succeeding crops—rye, clover and corn—were similarly increased.

Let us see how fields or land of different topography or surface outline may be operated upon so as to secure the benefit of this great discovery—effect these astonishing results.

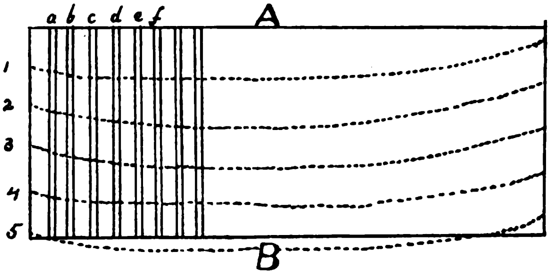


Fig. 10.

In this field, outlined in figure 10, the ground surface is seen to be sloping downward from A to B, as shown by the dotted contour lines 1, 2, 3, 4, 5, drawn to show difference of level of one foot each, so that the lower side of this field is shown to be five feet lower than the upper side. To operate upon this field, set the plow so thaut shallow furrows a, b, c, d, e, f, etc., can be drawn, say, two and one-half feet apart, as shown in the figure, three inches deep.

This is a sort of cutting and covering process and must be done with great care before the freezing weather of winter sets in, so that when a great rainfall occurs before freezing weather, supersaturation at the surface may be avoided, the subsoil heat escape and the frost penetrate. Care must be taken to keep trenches free and clear so that in time of great rainfall they may aid to carry off surface water. Allowing both horses to walk upon the land will locate the trenches at about the proper distance apart, of two and one-half feet.

This process, done before winter sets in, obviates supersaturation and leaves the land in the best possible condition for the frost to penetrate, mollify and reduce to soil the subsoil, which in its native state is hard, compacted and impervious.

Let us take the field AB, where the summit or highest portion is at the central

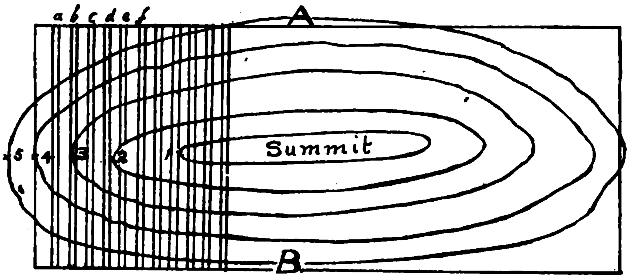


Fig. 11.

part or ridge running lengthwise, sloping downward on all sides as shown by horizontal sections or contour lines 1, 2, 3, 4, 5. It will be readily seen the trenches or furrows a, b, c, d, etc., will be made in same manner as in figure 10, to effect the proper result.

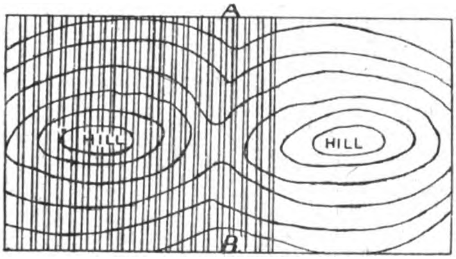


Fig. 12.

Suppose we have a field (AB) composed of two hills or eminences, as shown in figure 12, evidently the trenches must be made at right angles to the longer sides as shown in the figure, as the natural surface drainage is toward the sides here also. Care must always be taken that perfect outflow is secured at the extremities of the furrows to avoid all standing water during freezing weather.

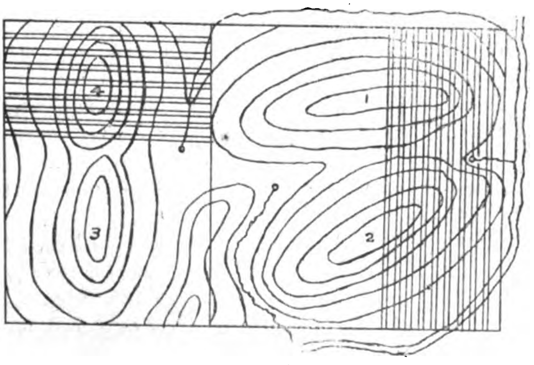


Fig. 13.

Let us now suppose we have the field outlined in figure 13, whose contour shows four eminences, 1, 2, 3, 4. To operate most effectually upon this, the trenches will be formed in two sections at right angles to each other as shown in the figure. It may be said to be modification of Figures 11 and 12 combined.

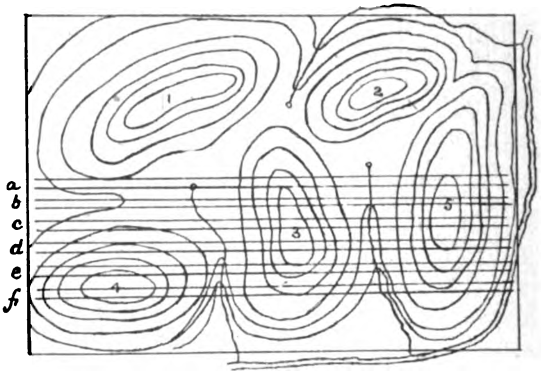


Fig. 14.

The general outline in figure 14 shows the drainage toward opposite sides. Hence the furrows or trenches may properly run right to left and left to right, as shown in the figure, across the entire field, as shown by furrows a, b, c, d, e, f, etc. There will be little difficulty in deciding how the trenches shall be made. They should in all cases be drawn so the water will discharge freely. If the water is allowed to stand or collect in the trenches the frost cannot penetrate, and hence so far no beneficial result can follow. It will sometimes occur that an auxiliary trench will be necessary to relieve water collecting in ravines or pools, while upon lands low and nearly level a discharging trench will be required, as no water can be allowed to stand in the trenches. Too much care can not be exercisd to see that all trenches are relieved. Let it be remembered once for all that if water is allowed to stand in the trenches no improvement can follow.

In well-regulated farm operations new fences should be erected on ridges formed from the material of, say, two furrows each side the line of fence turned together or back furrowed, and ridges should be perfected and ditches completed with hoe, shovel and spade. Ridges of fences so formed should be carefully seeded for protection. These ditches will carry water off from the trenches. There may be cases in which such discharge from trenches will meet with objection by an adjoining neighbor, but it is believed no inconvenience will follow, as such flow would be limited to storm flow only, and will be small at that.

Soil improvement and consequent increased fertility is the end to be kept in view in all practical operations in preparation for cropping. This must always be at the basis of successful agriculture. The soil and subsoil is a storehouse of fertility whose elements can be utilized only by the best conditions of culture. The best and proper results of artificial manuring, whether green, barnyard or commercial fertilizing, are secured only when the mechanical and chemical conditions of the soil are complete. This is conceded by all the best and ablest writers, who have spoken and written upon soils.

F. L. Allen, in a well-considered paper on "Increased Fertility," read at the Farmers' Institute held at Andover, Ohio, in December, 1899, and published in the Ninth Annual Report of Farmers' Institutes, at page 120, says:

"The soil can not perform its functions of preparing food for plants without the agencies of air, heat and moisture. Now, an excess of moisture excludes the proper action of the other two, and if the organic matters in the soil are not decomposed and resolved into a liquid or gaseous form so they can be taken up by the roots of plants, the process of nutrition is impaired and the plant becomes weak and sickly."

On page 121 the same writer tersely says:

"By proper tillage we can bring our well-drained fields into a fine, compact condition, the most favorable for storage of moisture. Generally speaking, the more thorough and intelligent the tillage the better the results will be, because the finer the soil the smaller the spaces between its particles, the more abundant will be the rise of water in the soil by capillary attraction."

All the best possible conditions of soil to insure the best results are effectually secured by our discovery, with the superadded storage of pure rainfall, heat and carbonate of ammonia, to insure the largest development of plant growth possible. By our discovery we not only unlock the storehouse of the subsoil, but the admission of air and oxygen changes its complexion and transforms it into rich soil with the result shown in figure 9. The storage of film water in the soil and of water at the base of the soil as thus deepened and improved below the plant rootlets, obviates corrosion, and effects the liberation and utilization of plant food by increased capillary action. Capillary action is brought up to the maximum, the temperature of the soil is unified and so mollified during the heat of summer as to develop the best possible results and secure the harvest shown by figure 9.

Soil and subsoil may be termed the laboratory where problems in agricultural chemistry are tested and solved. The subsoil in its native state is usually a mass of indurated shale material of greater or less depth, overlying a rocky substratum or gravel of the glacial epoch. The subsoil is a gold mine of fertility to draw from as the years go by. We utilize the great mechanical powers nature has furnished, to wit, heat, water, air, frost, capillary action. To regulate these powers and make them more active agents for good, now is, and throughout the future will continue to be, the great field for experiment alike for the practical agricultural engineer, chemist and practical farmer. Without an intelligent view of this great field for action and well-directed effort, very much of the labor of the practical farmer will be waste of time, effort and money. For instance, a supersaturated soil is not in fit condition to receive manure of any sort—and its application thereon is practically waste—while the soil improved, deepened and mellowed by our discovery will respond wonderfully to manurial accessions, judiciously made, whether green manure, barnyard manure or commercial fertilizer.

Let it be remembered, however, that commercial fertilizer will be of little need for years upon lands improved by this great discovery; its use will be practically dispensed with. After many years of successful tillage without its use the time may arrive when upon the lands so improved much more highly beneficial results will follow its application than could possibly flow from its use upon land not thus improved Tile drainage also is practically dispensed with.

Without this discovery, the old mode of procedure operated in an endless chain upon the old soil, with the usual results of a bare subsistence, with heart breakings and failures in trying to lift a mortgage debt from a soil so impoverished and conditions so obnoxious to the enterprising young farmer that, disappointed, disheartened, he threw up his chosen pursuit for a clerkship, beer-shop porter or deckhand. To the toiling sons and daughters of American farm life a new era dawns. With peace, prosperity and contentment, agriculture will be justly ranked where it truly belongs, "the most ancient, the most honorable occupation of man." Operating under the ægis of this great discovery, you will commence the practical operations of tillage from two to three weeks earlier in spring, upon soil mellowed, deepened and fructified by nature's forces. With these cooperating with you, my reader, the blessing of increased harvests, the benediction of the Parent of all good, will visit you and yours, as you joyfully cooperate with natural laws, to bless and prosper all your well-directed efforts.

The President: We will now hear the report of the Committee on Nominations, of which Mr. F. A. Derthick is chairman.

Mr. Derthick: Mr. Chairman, your Committee on Nominations begs leave to submit the following report of officers for the ensuing year: President, Mr. C. G. Williams, of Gustavus; Vice President, Mr. T. C. Laylin, of Norwalk.

Upon motion the report was unanimously adopted.

The President: We will now listen to an address by Colonel F. J. Berry, of Chicago, Illinois, on "Selecting breeding stock, care of brood mares and colts, and feeding and fitting horses for market."

Mr. Chairman, Ladies and Gentlemen:

It is with great pleasure that I come before you at this time to discuss my pet topic, the horse. It is a pleasure to me to help any industry that is at such a low ebb as the horse industry is at the present time, and it is very gratifying to me to give a word of encouragement on a subject that interests me so much.

Why should this valuable industry be at such a low standard as it is at the present day? It is not because the horse is not in demand and bringing good prices, for all classes of horses are in demand and are bringing good prices, but the trouble is that so small a percentage of the horses of the present day is class horses, and so large a percentage is not class horses, but instead, culls, misfits and nondescripts. Now, here is a work for the farmers' institutes, for the agricultural colleges and stock meetings everywhere to take up.

How is this question going to be impressed upon the people, that they may see the importance of commencing on the right lines to produce the high-class horse, and commencing immediately to make a vigorous effort to produce all of the different classes that are in demand, and have them strictly of their own classes and types and horses that the market demands.

My friends, I commenced breeding horses under very different conditions from what it would be to commence today. I commenced breeding the light harness. road and carriage horse forty-five years ago, when there was no recognized breed or class, no registry, and no market demand to guide the breeder, nothing to go by except the breeder's own judgment. If a man loves the horse and studies him he will arrive at a more intelligent conclusion than the man that cares nothing about this useful animal. All the guide we had in those days was the theory of different men, and almost every man had had different experiences, and nearly every man had a different theory. There was no well-defined principle established, neither was there a well-defined market demand, as we had no horse markets at that time to guide the breeder in producing a horse strictly of his own class, so it was a very different thing to commence breeding horses then from what it is today. At the present time we have the benefit of past experiences; today we have the market classes before us; today we have the great export demand before us; the type and class is set. So you see we are living in an advanced age, and with all those advantages why should we make a mistake in the production of the market classes of horses?

Perhaps it might be of interest to you, my friends, to hear my early experience, and if you will bear with me a little, I will relate to you how I learned my first lesson, which was a very expensive one, but, although very costly, it was a lesson that benefitted me greatly and has been my guide all through life, and worth to me many times what it cost. I have been a breeder of fine horses, also an importer and breeder of the registered draft horse, and I have made many mistakes, but they have been instructive lessons to me, and I am here today to give you the benefit of a long life's experience in this business, and no subject is more important, no branch of agriculture is more important than that which pertains to the horse. It is the foundation, as you might say, of the animal industry. The horse is indispensable, is more useful and serviceable than any other animal, and is the most intelligent and the noblest of all animals. He is the servant, friend and companion of man.

I am aware that the time is short, and I will have to be expeditious with my address, but there are a great many things I would like to say on this subject, because it is a subject of a life's experience, and I feel that my experience will be a benefit to the amateur and to the man who wishes to produce the horse the market demands, and, as my earliest experience made such an impression on me, and has been heeded all through my life, you will see the lesson was instructive, and although it was expensive at the time, as it cost me the savings of seven years, still I reaped enough benefit from it to conterbalance the loss.

I was brought up down in Maine on a rocky farm among the hills, though a fairly good farm, probably about the best in that section. My father had to figure close to get along in those days, as there was but little money in circulation, and what money there was sometimes was not the best. Farmers have many advantages and improved methods of living now that were not thought of in those days. My father did not care for horses, but we had a stock farm, and I was put in charge of the stock when very young. Horses then were very scarce, and we hardly averaged more than one horse, seldom two, on a farm. The horse was kept only for driving and riding, the work being done by oxen, therefore my father took no interest in the horse, as there was no money in it. It was with cattle that he made a little money, therefore his interest was little in other kinds of stock, and in the horse he was not interested at all.

When I was quite young I would look out from my home and see the horses over on the hillside or mountain, and I would start and go across through the forest, cross the brook and climb the hills and mountains to get a nearer view of them. I could not have been more than six years old, as I commenced the care of the stock and farm very young, at about seven years of age. Out there in the pasture I would sit down on a stone and study the horses, look them over and admire them, and so from my earliest youth a love grew up in me for horses, and I have studied these noble animals ever since.

I had an intense desire at that time to own a horse, and at the age of ten I made up my mind that I would own one, and commenced to save what little change I could pick up from year to year and put away, change that I received from doing chores for the neighbors and like little jobs. Wherever I could earn anything, it was all kept and cared for and saved for the purpose of buying a horse when I had enough to do it. I was seventeen years old, nearly eighteen, when I got my first horse. I had been studying the horse question all those years, thinking about it, watching every horse I could see, and had some ideas about horses.

I obtained permission from my father to buy a horse, and it was to be used on the farm. So I started out to buy my horse. I soon found one that suited me. It was a chestnut, and what we would now call Class No. 1, a gentleman's road or carriage horse, sixteen hands high, good size, weight about eleven hundred pounds, handsome, and the price I paid for him was one hundred and fifty dollars. This was a very great price for a horse at that time, as you could buy good horses then at from sixty-five dollars to seventy-five dollars. He was four years old, he was elegant, he was my ideal, and one of the most perfect conformation, high finish, high style and a good actor with great speed.

I used to sit down and look at him and admire him by the hour, study his good qualities, and think what a handsome fellow he was. I put him in a nice stall, bedded him with straw to the knees, and I would not even lead him to water in a storm. I took the finest care of him. I do not suppose he was out the whole winter when it stormed, but he was kept nice and warm and blanketed. I used him a little on the snow, but it being very cold the snow was dry and he got but little, if any, moisture to his feet, and they became dry and hard, the result of the very nice care and keeping him on a dry plank floor all through the winter, when, of course, previous to that time he had run out through the mud and rain, and thus kept his feet moist. As long as a horse's feet are kept moist they keep growing, and as long as they are growing they are soft and springy, and when the horse puts his feet down, the quarters spread every time he steps, and in this condition the feet are healthy and will keep sound as long as there is plenty of moisture around the coronets at the edge of the hair, but when standing on a plank floor, and kept entirely dry, the hoof stops its growth and becomes hard. and when the horse moves in this condition he is liable to go sore in the feet, and this was the condition that my horse was in in the spring. His feet were dried up and he got lame and sore in his front feet. And when I came to see that my horse was ruined I lay awake nights trying to study out what was the matter with his front feet.

He had been the pride of the family. We all took great pride in showing him to the neighbors and to people who visited us. This beautiful horse had been the talk of the town everywhere—what a nice horse he was, so handsome and fine, such beautiful style and carriage and I kept him so clean and in such fine condition. But when I found he was ruined I began to study what I could do with him, and I made up my mind that I would have to trade him off. I found that I could get but little for him, and father said I must not trade the horse, but sell him for whatever he would bring, and said he, "Let that be the end of your horse business." I knew that I could not sell him for much—just a few dollars, as he was nearly worthless in that condition, and you can imagine how I felt when I saw that my horse must be sold for little or nothing. I tried to coax my father to let me trade him for a colt or some kind of stock, to get something for him, but he said no. As horse traders had a very bad name at that time, his idea was to prevent me from getting into the habit of horse trading, and probably that was very good as far as it went, but I thought that I understood the matter in a little different light, and knew that by trading the horse I could get more for him than I could to sell him outright.

Well, I began to study into the question of why my horse went wrong, and I found that his father had bad feet and that his difficulty was hereditary; then I saw it was no use for me to keep him. Had I known how to take care of horses' feet as I do now, I would have given his feet moisture and kept them growing and springy, and this hereditary unsoundness would not have been brought out while in my hands. Here was a lesson I had learned, never to keep young horses standing on a dry floor, as they are very apt to go wrong in the feet, and for that matter every horse should have plenty of moisture around the coronets and joints, where the hoofs are growing from the hair, to keep them thrifty and growing. Keep your horses' feet wet if you want them sound; the ground is the best for them to stand on.

I began to study what could be done to relieve my horse and decided that his feet were dry, and so I got him out in a lot that was very muddy and wet, and by keeping him there it soaked his feet, and it being spring they began to grow a little, and it relieved him very much, so that he could go very much better. He was getting over his lameness, but I wanted to dispose of him, as I knew it was hereditary, and was afraid he would not get quite well. My father went away one day, and I had the horse out in the lot when a gentleman from a neighboring town who was a horse trader, drove up aid said to me, "I understand that you have a very fine horse." I said, "Yes, sir, we think we have the finest horse in this town, or that ever has been." He said, "Is it yours or your father's?" I said, "Sir, it belongs to me." The gentleman said, "I would like to trade this horse with you for yours. I have a customer for a nice horse, and I came over to see if I could get a trade with you." I said to him I could not trade, but I would sell my horse. But he was very urgent to make the trade. I said to him: "My father would not allow me to trade, but I will sell." And the more I pleaded off about the trade the more anxious he was getting all the time to trade, and at the same time I was just as anxious as he was, but I didn't give it away to him. I intended, when I found that I could not sell the horse, to make the best trade I could, but I still held off about the trade, and he kept making me offers, and finally he offered me his horse and fifty dollars. I knew that I could make a good horse of his by feeding and care, so I made the trade, and the horse I got, after taking care of and feeding him, I made worth one hundred dollars, and got fifty dollars to boot.

And now the worst of it was to come. I had disobeyed my father by trading away my horse. I was a little anxious about what might take place when he got home, so when he came home I was away. My mother promised me, when she saw what a good trade I made, that she would fix it with my father, and she did. When I got home he said but little to me, more than to say this must end all horse trades—that I must never do anything of that kind again. He was pleased with the trade I had made, as I had nearly made up my loss, but said that that should end all horse trading.

Now, this story of itself amounts to but very little, but in this experience I learned many valuable lessons, the first being that whenever selecting breeding stock I should be sure to look up their ancestry, and see that there was no hereditary unsoundness; again, it taught me in raising colts never to keep them upon a dry floor. Now, when I am fitting horses for market, I do not keep them on a dry floor, nor do I keep my driving horses so. I always keep their feet wet by walking them through water when they go to drink, or manage in some way to give them plenty of water, so the hoofs are made thrifty and grow, and when the horse moves, the quarters of his front feet always spread a little every time he steps. Cared for in this way the horses' feet will always keep sound, and they will have no trouble with bad feet or corns or dry feet, and they will never go sore, as they do when standing on dry floors.

This experience has been of great value to me all through life. I have bred many good horses, but I always look into the ancestry of my breeding stock, so I have always been sure to breed from sound horses. I bred "B. B. P." that made a record of two minutes and nine seconds and three-fourths, and won the Horse Review Stakes of twenty-two thousand dollars at Terre Haute, Ind., in 1894, and many other good ones too numerous to mention—"Charlie Boy," that I won eighteen races with in one season; "Nubbins," that I won fifty-two races with in six successive years. I did not breed "Alixe," but I sold her at about one year old for one thousand dollars. She made the world's record in 1894 of two minutes and three seconds and three-fourths, and held that record until she was dethroned by the "Abbott," who made the record of two minutes, three seconds and one-fourth, in 1900.

I have had great success as a breeder, and all those lessons that I learned with my colt I have put in practice, and practiced them all through life. Always when selecting breeding stock be sure that they are sound and free from hereditary unsoundness. Look up their ancestry, and be sure that you are started right. Spavins, curbs, side bones, ring bones and many other diseases too numerous to mention, are hereditary, and you can breed them in or you can breed them out, and I tell you lessons on these lines are very valuable to the breeder if he studies them well and always keeps them fresh in his mind and the successful breeder is sure to do so.

The breeding, raising, feeding and fitting horses for market is done on the same lines as every other business, and the man who goes into it must be master of the situation. He must know what he wants to do, and then his every effort must be directed to accomplish the desired object. The breeding problem is very much like the manufacturing business. If a man comes to your town and wants to go into the manufacturing business he first secures a plant, puts in expensive machinery and employs a number of men. Of course he must be master of the situation, must understand the kind of goods he is going to produce, and what kind of goods the market requires. If the market requires goods with a little thread of another color or stripe in them, he must produce goods with that stripe or thread, or of the latest style that the market requires, and he must understand all the demands of the market where his goods are going to be sold. If he does this he will be a successful manufacturer and business man. But if a man undertakes to manufacture goods and does not understand the market where they are going to be sold, and manufactures a different kind of goods from what the market requires, and leaves out this little thread of a different color, or that little stripe, or some peculiarity about the latest style, these goods, when he puts them on the market are liable to be found not salable, except at low and ruinous prices. The manufacturer makes a failure of the business, and is liable to go into bankruptcy, all of his help will be turned out of employment, and the stock of the company will be worth very little. Thus ruin and disaster follow the enterprise, while some other manufacturer with less capital gets on and makes a great success. Why? Because he thoroughly understands the business, and his success is made by his superior management. The man who goes into the breeding of horses, who does not thoroughly understand it, who has no well-defined principle, will find himself in the same condition as the manufacturer who did not understand his business.

Look at the cattle industry, the splendid Polled Angus, the Herefords and the Shorthorns. See what a type we have of each of the different breeds, see to what perfection they have been produced. Any two of the same age can be picked out of the herd and they will make a most perfect match. This shows what can be done by breeding with choice selections and judicious crosses. Any kind of an animal can be produced in great excellency, of a class and type that will surely reproduce themselves every time. The same with a herd of Poland China pigs that are of the same age: you can hardly tell one from the other.

The subject I am to speak to you on more particularly today is the selecting of breeding stock, the care of brood mares and colts: the raising, feeding and fitting horses for the market. I must not dwell too long on the details of the business, but I say to you, make up your mind what class of horses you want to produce, and then select your breeding stock with an eye to that ideal, with all the required qualities that you wish to produce, that is, strictly one of the five different classes, and strictly a horse of his own class and type; as any horse that is not strictly a class horse is a misfit and nondescript, and will prove a failure when he comes to the market.

As Class No. 1 is the highest class market horse, we will commence with that class, the road, carriage and coach horse. He is a horse that stands from fifteen and one-half to sixteen hands high, weight from ten hundred and fifty to twelve hundred and fifty pounds; dark color, nice looking, perfect in conformation, with a nice head, full eye; nice, fine ear, sharp and quick; large, fine and thin nostrils that are distended when excited; fine neck, set high on the shoulders and coming up sharp on the withers; sloping shoulders, short in the back with well-sprung ribs, round and smooth in the hips; the head of the tail set high ,enabling him to carry the tail like a waterspout; flat limbs with plenty of muscle and round feet, not too high on the heels and not too low, and when I say flat limbs I mean limbs with the tendons standing well back from the cannon bones, making them look flat from a side view. This kind of conformation of limb is not so apt to get puffy and gummy, but has a clean appearance. The hind legs must be reasonably straight, with plenty of bone and substance, with the proper slant of the pasterns, which gives the limbs the elastic spring, thus preventing the hoofs from striking the ground too abruptly, and also preventing concussion, and enabling the horse to move with a springy, elastic movement.

Now comes the action and the set of the limbs, and all classes of horses must have some action. The value of the harness class depends largely upon their high action, and the more action they have the higher price they will bring, and the horse that has straight-line movement and all around extreme action, with all other qualities necessary, is the horse that brings the extreme high price. The next important thing, and almost as important as action is the set of the limbs. The toes should point straight ahead, both front and hind feet. This gives the horse the straight-line movement, that true, frictionless motion. He must not be what is called "pigeon-toed," making him toe in, nor what is called "nigger heeled," making him toe out, or he will be immediately condemned by the best buyers, and for export will not be considered at all. He must have straight-line action, and when passing from you must take his feet up in a manner to show the frogs; if he does not do this in passing from you his movement is wrong, because the heels strike the ground first, and he does not have the rolling motion that carries the body with elasticity, but strikes the ground with the heel first, and this kind of a horse will soon become sore in his feet.

Now, we have described the horse briefly. I have not gone into detail because I have got too much to say—too much ground to cover in the short time which I will be able to occupy, and so will pass along, as what I have said in a general way applies to all the different five classes of market horses to a certain degree.

Now, if you are going to produce this class, No. 1, road, carriage and coach horse (all the same class of horse, only a little variation in type and size which fits them for the different harness uses), select your brood mare as near the type you wish to produce as possible; select her from the trotting family. There is no other breed in our country that you can select mares from except the trotting family, that will produce this class, No. 1, of horses. Then, I say, select them from families that have produced horses that have sold for the highest prices. This gives you two chances, for, if they are selected from speed-producing families, some of them may produce a good deal of speed, and prove very valuable, while those that do not produce speed, but possess the quality and action required, may be a high class and high-priced horse, too. Select from families that are sound, and be sure that there is no unsoundness in those families, and when you select a brood mare be sure that her dam was of the type and class that you wish to produce.

Of course the best horses are culled out and sent to market, but you will find some of those mares left, and by being very careful in your selection you will get one of the right class and type. Now, in selecting horses to mate with that mare, be sure that you are very careful, and get the right kind, and if you can not get the right kind, be sure that you get the best that you possibly can. If it is impossible for you to reach a trotting-bred stallion to fill all the requirements, select the best imported coach horse, and be sure that he is of the finest conformation and not coarse, and with this kind of mating you will certainly produce an A No. 1 colt. But it has been said that after you have made this choice selection and judicious crossing, that your colt may be inferior. This is true, but by continually selecting the best, with judicious crossing, you will surely succeed in producing the desired object, for some of them will be up to the standard while others may fall short. Place on the market such ones as do not come up to your standard, and always breed from the choicest productions, and by continuing this system you will surely breed the type and class that will reproduce themselves in great excellency. True, some colts' values will be far superior to others, but you should continue always to select from the best and those that come up to the standard that you wish to produce, and this is the only way that you can ever reach that high standard of the road, carriage and coach horse, that shall reproduce itself in great excellency.

I was greatly exercised this morning over Mr. Wallace's address, when he spoke of seeing a stallion that weighed eighteen hundred pounds beside a pony that weighed five hundred pounds, both originally bred from the same stock, and was explaining what could be done in breeding. It brought plainly to my mind the fact that with choice selections and judicious crossings you can breed any kind of a horse that you wish. You can breed them small or you can breed them large. You can breed them short or you can breed them long. In fact, you can breed them in any shape or form that you want to, but you should follow the true principles of breeding. Nature is true to herself, although she has many variations, but there is always a cause for those variations, and if you remedy the cause you will get the desired result.

Now, I feel that this subject is one that interests every man, woman and child, not only of the present generation, but for generations to come after us, and that they may receive the full benefit, we should commence laying the foundation of these breeding principles at once, and the sooner we commence the sooner will we reap the result of our labors, by producing the type and class that we need so much and that will reproduce istself.

Now, we have selected our breeding stock, the dam and the sire, and the next important thing is the care of the colts, the care of the mother while she is carrying the colt. You do not want to leave the mare standing in the stall in the barn all day. Do not leave her in idleness, standing upon a plank floor. If you have light work, and she is in condition, you may just as well keep her at work until it is nearly time to drop her colt. If you have no work, turn her out and let her run in the pasture, let her range through the cornstalks or run through the orchard, and be sure and see that she gets plenty to eat to keep her strong, and plenty of exercise, and she will make muscle and be strong and healthy. Have a shed or a box stall for her to run in in the coldest and in stormy weather, and at the same time see that she gets out every day unless the weather is too severe. It is all the same whether she runs out and gets plenty of exercise or whether she works moderately in harness with good care, but do not let her stand upon a plank floor in a stall forty-eight hours at a time. If she is allowed to run in and out of a box stall as she pleases and into the cornstalks, and has plenty to eat and drink, she will take care of herself.

Now, in this way the colts will come along in the spring and be strong and healthy, will take their feed, will grow and be thrifty, and you do not want to confine the colts; they need exercise and plenty of it. Now, here is a most important thing that I wish to speak of. I always have a man in attendance about the time the colts are dropped. He takes hold of the little fellow and helps him on his feet. He has a halter in his pocket, and puts it on the colt's head, and takes hold of the halter and assists the colt in getting a little nourishment. Then he leads him around the mare several times. The mare is excited, but the colt is not old enough to partake of that excitement; he knows nothing about fear; he is too young, and so it has no effect on his disposition. The next day the man leads him around the mare again, and the same for several days after. The man sees that the colts bowels move at the proper time; many colts get constipated and people do not know why they die, but unless the bowels move they are very apt to die about the fifth or sixth day.

This early lesson the little fellow never forgets; he has learned to have the hand of man put upon him, and it has become natural to him, and he grows up a horse that is tame and has a good disposition. Why? Because he has been petted and handled, and a colt that is brought up in that way will never make a vicious horse unless his mother is very high strung and has a bad disposition, and he inherits it from her, but a mare of this kind should never be selected for a brood mare, but should be used in some other way. The colt is halter-broken from the time he was born, and when you come to put the harness on him he will take kindly to it, and his education comes easily; he takes everything as a matter of course; his disposition is formed by comfortable and pleasant environment, and this gentle, kind treatment will be rewarded with big money on market day.

Here is one thing that you want to remember when summer comes and it gets dry and the grass dries up, about in July, and the flies come. The little fellow is too tender to fight flies, and when the grass is gone and parched up by the drouth the mare gives but little milk, and the colt goes back and loses, and it will take him a long time to recover unless he has proper care. My system is, as soon as the grass gets dry and the flies come, to take the mare and colt in by day. I usually have a shed that they can run in, or a box stall. I feed them a little middlings made into slop, have green corn fodder raised for that purpose and fed to the mare. The colt learns to eat oates with his mother, so mother and colt get plenty to eat, as a mare cared for in this way will give plenty of milk. I keep them in by day, and turn them into the pasture by night, so the mare and colt never feel the drouth of summer nor any inconvenience from the flies. The colt grows and does well, and the rains come in September and the feed starts, when I turn them out for good until they come up in the fall. The colt has made a nice growth all summer, and has learned to eat hay, oats and grain, as I always have a place where he can run through and eat his grain separate from his mother. Mare and colt cared for in this way will not shrink in the winter as the colt is weaned and has learned to eat his food. He eats hay, oats and grain and we feed him roots and other things during the winter. Never allow him to be scantily fed after he is weaned, and never confine him long, but let him have exercise, and with this kind of treatment he will make a very rapid growth all through the summer and all winter, and when he goes to grass in the spring a year old, he will have more the appearance of a two-year-old than of a yearling. A colt that gets this kind of a start the first year will always be larger and nicer than the one that shrinks for the want of food or from being annoyed by the flies in the summer or from being frozen in the winter, running out in the cornstalks looking for feed. When a colt gets thin at this age, he loses a certain colt-form that all the feed and care afterward fails to make up. The colt that gets thin in the flytime, thin again in the winter, and comes up in the old-fashioned manner, never will have the form and conformation of the high-class market horse. For instance, take a colt that is three or four months old that has had plenty of milk, and see what a beautiful conformation he has, how fine and well-developed he is in every point, and if you will give him plenty of feed through summer and winter, and keep him growing, he will grow up with that colt form, will have that fine finish, be ready for the market a year earlier, be from one to two hundred pounds heavier, will come to the market with those qualities that the market requires and will bring probably double what the colt will that is raised in the old-fashioned, careless way.

The next thing is to break them to harness in the spring. When they are coming two years old we handle them a little and again every spring until they are ready for market, both single and double. Now, when they are getting ready for the market, say four or five years old, we put them all in stalls and they get used to being driven single and double, and they never miss a day for being taken out for a half-hour's drive; they are driven to the cars and handled every day, and we teach them when they come out of the stall to stand perfectly still until they are harnessed, hitched to the vehicle and are ready to go. In this way we raise horses that are kind, gentle and good-mannered, and these qualities, together with a fine finish and good action will bring the very best and highest prices.

Right here I would like to call your attention to the sale made by M. Tichenor & Co., at the American Horse Exchange, New York, in April, 1899, of forty horses, all trotting-bred and most of them standard, nearly all matched pairs, ranging in size from fifteen and a half to sixteen hands high, possessing all the required quality and action that I have been calling you attention to. These forty horses brought forty-two thousand dollars. They were picked up in the fall of 1898, were raised in Illinois and Iowa and bought on the Chicago market, I selling some of them myself. After handling them and getting them ready for the market in Chicago, they were shipped to New York. As I said, they were all trotting-bred, mostly standard, and were a very superior and high-class lot.

This will demonstrate fully what can be done with breeding, when one sets himself to work on the right lines, and, with persistency and continuity of purpose, what a successful business the breeding business can be made.

Now we will leave this horse and take up the cab horse, Class No. 2. He is a small horse, about fifteen and a quarter hands high, weighing about one thousand pounds. He is not of so much importance, and so we will pass over him, although he is a useful horse and is used in European cities as a cab horse.

The next is Class No. 3, the omnibus or express horse. He is a cross between the small, active farm mare and the draft horse, what you might call a minimum draft horse. He is fifteen and a half hands high, weighs from twelve hundred and fifty to thirteen hundred and fifty pounds, is block made, nice and smooth. His step is one of the straight-line movements; he is smooth made, sound and on the blocky order, quick and active. This is a nice horse for the farmer to produce, as he can commence working him at two or three years old, getting him well broken and fitted for the market when four or five years old. There is any amount of demand, as there never has been enough of this kind of omnibus horse in our markets to supply the trade. They sell for one hundred to one hundred and fifty dollars, and are as good on the market as gold dollars.

The next horse is Class No. 4, the draft horse. He is a horse that is of more interest to the farmer than any other kind or class, and every farmer should be interested in raising the draft horse. Any farmer can buy a draft mare from fifteen hundred pounds to seventeen hundred pounds in weight, three or four years old, or older, and she can go right on and work on the farm and still produce a colt every year. Mate her with the largest and highest class and highest quality draft horse possible, and raise the biggest, heaviest colts than you can produce. Mares can be worked all the time except when suckling their colts, and the farmer can have a crop of colts come in the spring and a crop in the fall, so he can have some of his teams of mares to work the whole year round, and he can commence working the colts at two or three years old, and work them a year or two, and they are ready for the market, because they are broken and are used to work, and after feeding and caring for them in the proper way, he can raise a horse that will weigh, at five years old, from seventeen hundred pounds to two thousand pounds. The farmer does not want to stock his whole farm with horses, but have the proper amount in proportion to the size of his farm, and raise them with other stock, say, have a crop of colts come on every year as the older crop of about five years old is sold off every year. Thus they come on in rotation, and the farmer has about so many horses for sale every year, after he once gets started, and no farmer can afford to raise anything but the best quality and highest class and largest size, for the day of the small horse is past. All horses have to be good size of their class and kind or they are not worth the work of raising, and all horses must have plenty of knee action. Some people say they do not like these big draft horses; they are too heavy to farm with. All I have to say about this is, that you do not want to raise the clumsy kind, you want to raise the kind of draft horse that is all horse and active and that can get around. I can show you a horse that will weigh one ton that is just as active as a pony, and will move right along with your buggy six miles an hour.

The draft horses that were imported into this country fifteen or twenty-five years ago were not the kind nor the class of draft horses that we want to raise now, and those stallions imported at that time would not make average fair geldings now, but better ones are coming all the time, and the importers have begun to realize that this country demands the best kind of draft horses, and the draft stallions imported of late are of a very different kind from what they were fifteen or twenty years ago. Thus the future horse of this country is going to be a great deal higher class, more quality, more action and more horse to the square inch than that of ten years ago. Therefore I say, aim to breed the best, high class, high quality, with plenty of size, bone and substance.

Never allow your man to be rough and pound them; many horses are injured and are permanently spoiled by rough treatment and pounding them over the head. Treat them gently, that they may be good-mannered, and come to market gentle, well broken and in fine condition.

Now, about feeding horses. I want to speak of what has been done in feeding horses in the past. Years ago the farmers of Pennsylvania used to have buyers all through this western country, buying up the largest, finest and best draft colts, two, three and four years old, and taking them to Pennsylvania and feeding them, and make choice, heavy draft horses of them, to supply the New York, Philadelphia and Eastern markets at high prices. This became the great business of Pennsylvania farmers, feeding horses. Of late years our farmers through the West have taken up feeding horses, some in Iowa, a good many in Illinois, and probably more in Ohio, who make a business of it. They buy them at three and four years old and feed them and fit them for the market. I think the best or most profitable classes for the feeder to buy and feed for the market are as follows: Class No. 1, the carriage, coach and road horse; Class No. 3, the omnibus and express horse; Class No. 4, the draft horse. The latter may be the most profitable for the farmer to feed. While I have been a breeder myself all my life, I have turned my attention of late years to feeding horses. Allow me to tell you how I feed. I feed the road, carriage and coach horse, the omnibus horse and the draft horse. I buy horses that are strictly of those classes. I never buy one to feed that is between two classes, or of no class, as there is no profit in this kind of horses, but buy horses first that are sound, of good bone and proper conformation, and all the other qualities that are required of each class, although they may be thin, but, as I say, I buy a horse of good quality of his class, and strictly a horse of his own type.

I like a box stall to feed in, and I want to average a gain of one hundred pounds per month. If I can not make the horse gain one hundred pounds per month he is not right or doing well, and I send him to the auction and sell him. When I feed at the farm and I find they are not doing well, I turn them out to grass awhile, and they usually come back and take their feed well and gain all right, but when the horse's blood is fevered there is no use feeding him; he should be turned out to grass and allowed to get cooled off, and he will come up in condition and come back and take his feed and do well. A little grass is just about what such a horse needs to bring him in condition. When I feed in the city I feed a little different from what I do on the farm. I buy horses that only need a little finishing and intend to feed them about one month, and make them gain about one hundred pounds, which makes them a great deal more valuable. Now, suppose I buy a thin horse that weighs from fifteen hundred to sixteen hundred pounds, to cost one hundred and fifty dollars. By feeding him at the farm for two or three months he should weigh seventeen hundred to two thousand pounds, and should bring from two hundred to three hundred dollars. When a horse makes two hundred pounds in three months, there is a great profit in feeding, as it puts from fifty to one hundred dollars on his price. Now, I can feed a horse for from five to seven dollars per month and give him all the hay and grain that he can eat, and by feeding from five dollars to twenty dollars' worth of feed I can put on from twenty to one hundred dollars on his price. So you see there is a big profit in feeding horses, but it takes a man of judgment and experience to select the kind that will pay to feed. Any man that is used to horses, by studying this question a little, will understand it perfectly and will soon become an expert feeder.

The horse industry, I tell you, gentlemen, is one of the greatest of industries. As I shall talk tomorrow on the "Horse of the Twentieth Century," I shall take up many points that I have not time to take up today. If you will pay attention to those little things that I have spoken of they will be of untold value to you if you want to go into the breeding of horses.

Now, let me tell you something about the prices that some of these horses bring that have been fed, and what some of the feeders of Illinois and Iowa are doing. In February a gentleman from Bloomington shipped a horse that he had been feeding nearly three months. He bought him for one hundred and fifty dollars; he fed him in the way I spoke of, and the horse made a good gain; he weighed over nineteen hundred pounds in Chicago, was sold at auction and brought three hundred and twenty dollars. So you see this horse a little more than doubled his money. I want to tell you now of a gentleman in Iowa who bought horses to feed for the market. This was a year ago. He picked up in Iowa a lot of Class No. 1, of the road, carriage and coach horses; they were all trotting-bred, all standard; they were from fifteen and a half to sixteen hands high. He fed them from two to four months, hitched them to drive a little every day, fed, groomed and cared for them; they were all well broken. He shipped them to our market and sold them at auction, the carload averaging four hundred and twenty-five dollars per head. He had fourteen head that he fed and fitted in this way. He paid for this lot of horses from one hundred and fifty dollars to two hundred and fifty dollars each, so you see they doubled his money. There is more money in feeding and training this kind when one understands it thoroughly, than there is in any other class. At the same time there is a great deal more risk, and it requires a great deal more experience and judgment. I will call your attention to one more load of draft horses that were fed at a farm in Iowa and shipped by Benjamin Gillman to our market in January, 1901, to M. Newgass & Son, Chicago, and sold at auction. The average weight was about two thousand pounds each. He raised part of them and bought part of them and fed and fitted them for the market. They were one of the best loads of draft horses that I have ever seen. One pair sold for export for seven hundred dollars. Another pair sold for export for six hundred dollars and others sold singly from two hundred and fifty to three hundred and fifty dollars each, the whole load making an average of a very high rate. I do not remember exactly what the load averaged.

And now, my friends of Ohio, will you take the little advice that I have given you and put it into practice? This is the system that I have followed for many years, and it has always proved a success, and I venture to say that it will make you untold money. Now I will leave this subject with you. I thank you for your kind attention.

The President: The next thing upon the program is an address by Col. Brigham, but I believe he is not here at the present time, and as we have no time to waste we will pass on to the next order of the program. We all admire the push and enterprise of our western friends, and I am glad today that we have with us a representative agriculturist of the west in the person of Mr. George H. Van Houten, Secretary of the State Board of Agriculture of Iowa, who will address us upon the subject "Horticulture in Home Making." I now have the pleasure of introducing to you Mr. George H. Van Houten.

Mr. Van Houten: Mr. President and gentlemen: I have committed to writing what I have to say to you here today:

In the presentation of the subject, it is desired that the word "horticulture" shall be considered in its broadest meaning. Not that any attempt will be made to treat of all matters relating to horticulture, but rather that we may be able to lay hold on anything that will add to the interest, or result in benefiting the home. With this in view, let us have the right to use the art of the landscape gardener, the trees of the nurseryman, the vegetables for the table, in fact, anything that will make home more desirable. Were a site to be selected, especially if there should be room to choose, it would be an easy matter to say select some dry, elevated ground where there would be good drainage and abundant room for lawn, walks, drives, garden, orchard, and with space enough so that the necessary outbuildings could be removed to a considerable distance from the dwelling. If we had such a location to start with it would be an easy matter to lay out the grounds so as to produce desired effects, with winding drives and slightly curved walks, with clumps of trees and spaces on lawn for grass only; then with screens of shrubs for outbuildings, with background of evergreens, with here and there shrubs and deciduous trees. Then there should be a vegetable garden, fruit garden and orchard, all conveniently arranged, besides shade for stock and quiet retreats, even though small, where, either in summerhouse or shaded place, retirement from the gaze of the outside world might be enjoyed when the inclination so directed. But often, in fact, most generally, the home has been located, and often without much consideration to artistic beauty. Not only that, but in many cases large trees occupy the ground, so that more desirable varieties have little chance of thriving unless the work already done is to be sacrificed.

Drainage.—Good drainage for the home grounds is of first consideration, and should be had by good surface fall, and, if necessary, tile properly laid to quickly relieve the surface and subsoil of surplus water. There should be a sewer from the house and proper arrangement for water pipes to carry water into the house and to proper places for stock, with such drainage as will prevent mud holes or standing water about the premises. The outbuildings should be at a reasonable distance from the house, not only to avoid odors from the barn, but as a precaution against the spread of fire, should any one of the buildings be burned, so that there would be a good chance for the others to escape.

Location of Buildings.—There is an advantage in locating buildings so as to have considerable space between them as a precaution against fire, even if buildings are insured, for insurance companies charge according to the hazard of the risk. A recent experience illustrates this: Had my present residence been removed but two feet further from a building already erected, it would have gone in another class and at a considerably lower rate, but I, like many others, did not consider the matter until it was too late to benefit by the knowledge.

Size of Buildings.—Many mistakes are made in the size of buildings, especially in dwelling houses. It is nearly as bad a mistake to make a dwelling too large as it is to make it too small. If too small for the people who are to inhabit it all the time there is a mistake, of course, but if much too large for those who are to occupy it, the extra space becomes a matter of expense if cared for, and a useless extravagance if not used. Special attention should be given to the planning and erection to have warmth and convenience. A good outdoor cellar or cave is a great convenience in preserving horticultural products, far better than a cellar under the house, but this does not mean that the house should not have a basement.

The Lawn.—The size of the home grounds should, in a measure, at least, determine the size of the lawn. A small lawn, if properly arranged, may be very nice, and with restricted land holding is all that can be devoted to that part of the arrangement. No matter how small it is there should be some clear space, that is, some part or parts free from trees, or in fact anything but grass, but it is not necessary to have a large lawn to produce desirable effects. If there are trees near the dwelling they should be dwarfs, for no tree should be so close to the house that it will exclude sunlight and free circulation of air. If it is desired to have something growing near the house some shrubs or low-growing plants can be selected that will produce the desired effects without being in the way or producing unfavorable results. Trees, if set on the lawn, should have such space as their habits and size require, except that in large lawns it is permissible to plant trees in clumps where their inside limbs may seem close when fully grown. Large-growing evergreens, especially the darker, stiffer growing varieties, should only be set in the background.

Windbreaks.—In exposed situations it may be desired to have evergreens set in close rows for windbreaks, but if such are near the dwelling, and especially in small grounds, they should be kept clipped down so as not too much to obstruct the view. Dense, low-growing evergreens make a suitable windbreak, but care should be exercised so that snow will not lodge in undesirable places. Most evergreens can be kept cut back so as not to grow too high, and this cutting does not injure them if done properly. While it is permissible to allow windbreaks and shrubs to limb low on the lawn, it is not best to allow trees generally to do so, and they should be trimmed high enough to allow unobstructed view about the dwelling.

Grass.—The prime beauty of a lawn is grass well kept. Bluegrass, where it thrives, is preferred, because it comes early in spring, makes a dense sod and, except during drouths of summer, continues green during the entire season. If care is exercised in setting the trees and shrubs a lawn mower can be used to good advantage, and it will only be necessary to use a grass hook immediately about the trees and shrubs.

Shade Trees.—But few shade trees should be set in a small lawn, and even in a large lawn the number should be restricted. A lawn is not a park, and ordinarily should not take on such proportions as to suggest that it is anything but a lawn. The trees to be set should be selected with care, not only as to their cleanliness, but as to habit of growth, durability and desirability. Native trees can be used to advantage, and yet there are some imported varieties that are good and allow contrast. The cut-leaf weeping birch, the Russian olive, and a few other desirable kinds could be planted to advantage, but the hard maple, the white elm, ash and others of our natives can be planted more extensively, and it should be remembered that preference should be given to those varieties that thrive in the locality.

Evergreens.—Where plenty of room can be given, the white pine is desirable, and especially in the background. The Austrian or black pine is too coarse except for the background, and must have plenty of room else it will shed the foliage except at the top, and the ends of the limbs. The hemlock, where it thrives, is desirable, but west of the great lakes it requires special care and does not grow on exposed situations without special treatment. The *picea pungens* or Colorado blue spruce is one of the finest evergreens, and will contrast well with any other variety. Its silvery blue appearance, especially the silvery specimens, show up well in winter or summer. There is a great variation in color and shading, and the lighest colored ones are the most beautiful, but all are desirable, and as they increase in size become more beautiful. The Black Hills spruce is a very good tree for lawn or general planting. The arbor vitaes are fine and the different spruces, the fir, the pines and especially the dwarf pines can be utilized to advantage on the lawn. No lawn will need all the varieties named, and the certainty of success of the variety for a given place may be taken into consideration in making selections.

Shrubs.—There are so many shrubs and climbing plants that do well that it is more a matter of taste than anything else in making selections. There are many spireas that are desirable, among the hardiest and best is the spirea Van Houteii, which has a great profusion of flowers, grows only to medium size and has a good habit of growth. There are other varieties and colors, but some of them are not perfectly hardy. Then there is a Tartarian, or tree honeysuckle that has beautiful bloom and showy fruit. In roses there are so many that it is easy to make a good selection, and for summer-houses or trellis work there are many climbing plants, besides roses that will give satisfaction. The crimson rambler, and in fact most of the climbing roses should be taken down and covered in winter, to be replaced on trellis in the spring. The wistaria, the Virginia creeper and the ivies are fine in proper places on walls or against outbuildings, where their shade would not be objectionable.

Bulbs and Bedding Plants.—There are many bedding plants that are fine on home grounds. Some must be taken up and wintered in the cellar, others will stand out over winter, and some have habits that will prevent them from becoming popular. For example, the yuccas must be planted in succession, for as soon as they bloom they must die, and if the planter does not know of this habit he is disappointed. If the stolons are removed after the first or second year and set out and each year thereafter other plants set out, there can be a succession of these desirable plants. They are perfectly hardy and only need a light mulch in winter, and if treated as suggested will give satisfactory results. The yucca philamentosa is one of the most desirable, but there are several varieties. Then there are lilies and many other bulbs that are desirable, and bedding plants too numerous to mention, that can be used to fill up any space not otherwise occupied.

Annual Flowers.—Some of the most beautiful effects may be produced by annual flowers, but as these may be planted in the garden, if the home has a garden, but few would be required on the lawn. On grounds too small to be called lawns I have seen very desirable effects with beds and groups of annual flowers. Indeed the selection of colors and habits of growth and the proper arrangement have more to do with effects than magnitude. In fact a lawn should not resemble a flower garden, and yet there should be at least a few flowers on the lawn, and if there is room there should be several groups of bright flowers. Flowers of any color will contrast well with evergreens and the foliage of deciduous trees.

Vegetable Garden.—As no home can be complete without a lawn, so no farm home can be complete without a garden. In fact there are many fine gardens in towns and villages. There are many professional and business men who enjoy the physical labor and the mental diversion required to make and keep gardens. The magnitude of the subject under discussion, as a whole, precludes the idea of entering into the details of garden work, so only hints will be given. A small tract of land well enriched and well cared for will produce more satisfactory results and give more profit than a much larger space poorly attended. Weeds should not be allowed to grow; the method of culture should be such as to kill them by stirring the ground frequently and lightly, and the few weeds that grow too near the plants to be destroyed with wheel hoes, can be pulled out, but if the work is done at the proper time and in the proper manner, there will be but little hand weeding required. Strawberries need such frequent renewal that they may often be planted to advantage in the vegetable garden, while asparagus and pie plant may be planted in the fruit garden, for they are as permanent as are the trees and berry bushes, and if planted on one side of the small fruit plantation, away from trees, they will thrive, and, as they can be cultivated when currants and other bushes are being cultivated, it will often be advantageous to plant there instead of in the vegetable gorden. A good garden is considered as half the living, and often it is the best half, especially if vegetables and fruits are grown.

Fruit Garden.—By fruit garden is meant the fruits other than tree fruits or what might be denominated orchard fruits. Strawberries are easily raised and with good care produce very satisfactory results. There is scarcely a soil so poor that strawberries will not grow, and some varieties can be found that will do well in any given locality. Currants, gooseberries, raspberries, blackberries, grapes and many other fruits can be grown. Plant the varieties known to do well in the locality, if such there be, and leave experiments alone, except that an occasional variety of promise may be planted, but if the sale of plants is not a consideration wait until prices are reduced and the variety has passed beyond the novelty stage. Good culture is desirable for all small fruits and weeds should not be allowed to go to seed in the fall after cultivation has ceased. They should be cut out or pulled out, and it is economical to do this, for after care and attention will be greatly lessened by this method. A few hints only can be given:

Mulch currants and gooseberries with coal ashes or wood ashes, where they can be had conveniently. Keep coal ashes as far away from grapes as possible. Leave the tip varieties of raspberries in the ground until spring before being severed or removed from the parent cane, as this will have a strong tendency to prevent winter injury to the canes. This is especially desirable with the Gregg and other partially tender varieties. The surplus blackberry and other fruit sprouts should be considered as weeds to be destroyed as soon as they show, if not destroyed before with cultivation. Proper thinning out of canes, cutting back and removal of old canes should be attended to and if not done before spring there should be a general cleaning up and all rubbish burned, not only for the looks but many insects will be destroyed if the rubbish is carefully gathered and burned in time to prevent hatching or development. But little extra care is required to keep a fruit garden looking well and for this, if for no other reason, the work should be neatly done; but good, careful work will pay in the greater returns in fruit as well as in the satisfaction on account of the neater and better appearance.

The Orchard. Some may be interested in the orchard from the commercial side, but as more will be interested in it from the standpoint of the home, I will speak only of orcharding for the home. This, of course, will not preclude the idea of planting to such an extent as to furnish the home with plenty of fruits in seasons of light crops, thus enabling the home to be supplied in seasons of scarcity, or the selling of the surplus in seasons of plenty. But the main idea should be the furnishing of the home with fruit during the entire season, which is easily possible with the great number of varieties now to be obtained. Very early varieties should be selected and then a succession, so as to cover the entire season, with a few of the longer-keeping varieties for late winter, spring and early summer use. The Small Romanite and the Lansingburg, with other varieties can be depended on to keep, under favorable circumstances, until early apples are ripe.

Where growers have access to cold storage plants many varieties will keep, but experience has shown that some varieties do not retain their flavor and are not suited to cold storage. The Benoni is an example of an early apple that will keep in cold storage and retain flavor, while the Oldenburg and many others will not retain much flavor for any considerable time. Apples to be kept long should be picked early and handled with special care. For home use varieties of prime quality should be given a prominent place. While Ben Davis is a good cooking apple and, where it does well, should be grown, yet the Jonathan, Grimes and many others are so superior in quality that in the home orchard they should be grown, even if they do not yield as well.

A large share of the losses in tree planting is due to the condition of the trees at the time of planting. Trees are often dug too early in the fall and suffer exposure before and during shipment; often again before the planter receives them they suffer by careless handling of agents, and then must endure transplanting, often under unfavorable circumstances, and so the losses are often so great as to discourage the planter. Trees may be dug in the fall, possibly should be dug then, but they should be quickly buried so deep as to prevent injury from the cold of winter and then they should be taken out in spring and heeled in with tops toward noon sun and ground kept moist until time of planting and the trees exposed as little as possible while this work is being done. Trees may be wintered in the cellar if properly packed.

Realizing that each locality has experience peculiar to itself, I will not attempt to give specific directions, and yet there are certain general principles that hold good everywhere. Thorough work in every line is necessary to success. Little or no pruning should be given the year the trees are set, but long branches may be shortened. Only after rapid growth should any considerable amount of pruning be done and that rather sparingly. As between too much and too little, prudence would suggest the latter. Pruning of young orchard trees should be done at a time that the cambium layer is forming, say in spring during rapid growth. This will usually occur from the time the trees are in full leaf until the middle of June, and it is dangerous to prune after the first of July and from that time until fall. Early, frequent and thorough cultivation is required to induce good growth and best results. If the cultivation has been constant there is little danger of cultivating too late, but late cultivation is unnecessary if proper attention has been given during the early spring and summer. If trees are formed properly in the nursery and given a little pruning in proper manner each year after the year they are planted in orchards, it will be but little work to keep them in the shape desired. But it should be remembered that some varieties need to have thick tops while others need thinning out. It should also be remembered that some varieties will not make thick tops and, to a certain extent, these natural inclinations may be indulged or permitted. The Rome Beauty and Grimes' Golden may be mentioned as varieties that will endure thick tops, in fact the first named needs to have the top thick and heavy to produce best results. The Talman Sweet will naturally form an open top and the fruit will quite naturally drop from the trees and be wormy; at least that has been my experience with them. Ben Davis, Rawle's Janet and many other varieties need judicious thinning to produce large, well developed and well colored fruit. A little observation and inquiry will enable the inexperienced planter to do all orchard work in such manner as to enable him to succeed in fruit growing and as he gains knowledge he will become enthusiastic and he may have to be very careful not to become a horticultural crank; but, seriously, there are many worse cranks in the world than horticulturists. Some cranks put forth time and energy to injure others, while horticultural cranks only seek to benefit those with whom they come in contact.

To succeed in horticulture may require more skill and closer investigation and application than to succeed in other callings, but there is a fascination about the work that engages the attention of those in such lines, a pleasure and a satisfaction gained in no other way, and, if we can but guard against experiments, there is as great prospect of success as in other lines of work. Now, when we have experiment stations in every nook and corner of our country, and many experimenters at work on all lines of work, there should be less temptation to enter this line of horticulture and the farmer and home-maker should resolutely let experiments alone, because such work will inevitably lead him into lines where there is doubt and where there will be failures; but if he will pursue horticulture for the benefit of the home, and with a view of making home more desirable and attractive, there will be plenty of room for success, in fact success is assured, and to the home builder the appeal is made to use horticulture as a means of increasing the comforts and delights of home, and if possible to make ideal homes, suggestive of that better home, where rest and pleasures abound on every hand.

People do not regard the æsthetic side of life as much as they should and in the use of trees, plants and flowers, perhaps more than in any other line of work, can the æsthetics be taught and inculcated. We esteem the beautiful in art and in nature, and here we have art and nature combined and so intermingled that at times it is difficult to tell which predominates. To a modern city, parks are necessities, where the tired and the curious may go; where those on pleasure bent may find retreat and pleasure; where the careworn and weary may rest and refresh themselves and what the park is to those shut up in the city, the adorned home grounds is to the dwellers in that home, but with this difference, the home is their very own; they enjoy its pleasure every day and all the time, and the boy and girl brought up under such surroundings has a higher appreciation of the pleasures and comforts of life, has higher and more noble aspirations and greater ambitions and better prospects of realizing the best hopes, for they have had better opportunities and are, therefore, better equipped for the battle of life, for life is a contest. Good and evil are presented at every hand and at every turn and they, who have had good opportunities, have imbibed high and noble resolves, suggested, possibly by the surroundings, are better equipped for the contests to come than those who have been less fortunate in their home-life. Life is indeed a contest and each decade is becoming more and more of a struggle, so that as time goes on it will be more difficult to succeed and those who are best equipped will succeed best. It is better to be born with good, vigorous constitution than to be born rich; it is better to be endowed with good principles than to be endowed with houses and lands; it is better to be animated with high and noble resolves than to be ambitious for wealth; it is better to be desirous of aiding and helping our fellow beings than to be avaricious of power, for there comes a time when all distinctions, except that of goodness are leveled, when the pomp and pride of this world can not give joy, and then, the consciousness of duty well performed is the only consolation. May not these right principles be implanted more certainly under good home surroundings? If so, then the first thought should be to so build the home and so surround it that it will be the delight of those who reside there, and even after leaving and going forth into the world, and when meeting itc cares and perplexities, the memory of that home and the moral precepts gained there, may be as a guiding star and enable them to keep in the straight line of duty, so that ultimately there will be a place for them in that home from which there will be no departure.

There is much of work and drudgery in the world and always will be, but there are bright spots in almost any kind of business or labor, and more, perhaps, in horticulture than in any other. In fact it is a work in which business and pleasure can combine to a large extent. Even in so simple a thing as the adornment of home grounds there is room for the taste of the planter and he can exercise his ability and skill to any extent that his inclinations direct or his financial ability will permit, and, when we consider the æsthetic side, the influence of the object lesson presented, in other words when we consider the good that he may do in influencing others, not only those in his own home, but those who may but see what he has done, it should energize those who are able to make good homes and best home surroundings to put forth some effort. As the country grows older, as wealth and opportunity shall bless our people, it is to be hoped that they will do more to present the brighter side of life. They can do this by surrounding their homes with trees and fruits and flowers, and while getting the most benefit from their investment themselves others will see, some will copy, and others, even if unable to copy, will enjoy the object-lesson presented.

Greater satisfaction in this life may be found in culutivating those habits and traits that enoble mankind, and of all the things that require labor nothing seems to bring man into nearer relationship with nature and nature's God. This necessarily means, not only nature speaking to man to arouse his curiosity, but it adds to revelation in presenting the All Father to him as having put it within his power to produce those things that will supply his necessities and add to his comforts.

Did the work proposed involve large expenditures of time and money I would hesitate to recommend home adornment, but even with small outlay much can be done, for the main thing is to create the desire, as the means are easily supplied, the information is available and can be had for the asking.

The President: It is growing late and it will therefore be necessary for us to pass along as rapidly as possible. We will now listen to an address by Col. J. H. Brigham on "Experiment Stations and their Work."

Col. Brigham: Gentlemen of the Farmers' Institute: Some of you are aware of the fact that it is not an ordinary thing for me to read what I have to say on occasions of this kind. But knowing that you are here from long distances, some of you, and at some expense, I thought I better try to condense as much as possible into a very few words; and I know that in speaking without having first put what we have to say in writing, we are very apt to scatter and repeat. I have tried in what I have written to give a brief review of what the experiment stations are doing, or trying to do for the farmer. I have had the assistance of all these agricultural associations and institutions that are keeping that thought uppermost all the time—what are they doing and what can they do to help the farmer?

During the past year the office of experiment stations, in making its annual examination of the work of the different state and territorial stations, has inquired particularly whether the operations are conducted with special reference to the agricultural needs of their respective states and territories. The results of this inquiry show that by far the largest part of the work of our stations has direct relation to the important agricultural interests of the communities in which they are located. The stations are, in fact, very responsive to the immediate demands of their farmer constituencies; their work is becoming better organized, and their investigations are more carefully planned and supervised. The nature of their operations is also becoming better understood by the farmers and the desirability of more thorough and far-reaching investigations is much more appreciated than formerly. A broader and deeper foundation of inquiry is being laid each year and there is a constant accumulation of data regarding the general agricultural conditions of the different regions of the United States.

The climate, soil, water supply, native and cultivated plants, injurious insects, fungi and bacteria are being studied in more detail and with greater thoroughness than ever before.

The feeding of animals and the causes of their diseases are subjected to more thorough scrutiny. The more scientific work of the stations is being made to contribute to their practical operations. These are assuming a more substantial and systematic character, and are being conducted with more definite relation to actual conditions. They have, therefore, a greater assurance of successful practical outcome.

Questions relating to the introduction of plants, or the improvement of the live stock industry in any region, for example, are now being investigated with strict relation to the real requirements of the agriculture of that region, which would have been impossible a few years ago.

The present activity in plant breeding, as distinguished from indiscriminate testing of varieties, is a good example of the raising of the level of experiment station work as applied directly to practical ends. The plant breeder now studies definitely the kind of variety needed for a farmer in a given region or for a given purpose and applies all his scientific knowledge and practical skill to the production of such variety. To do such work effectively there must be an almost ideal combination of science and practice.

The Minnesota station, for example, has during the past few years carried on a large number of experiments in breeding varieties of wheat, and has already produced one or two varieties which promise to add several bushels an acre on an average to the yield of wheat in the regions to which they are especially adapted.

Some of the investigations of the stations gave practical results of great value as related to the conditions of drouth which prevailed in a large region in the Northwest during the past season. In North Dakota, for example, the wheat crop was very short, not averaging over four or five bushels an acre. The early part of the season was so dry that the plants did not grow more than a foot high. While this was true on farms generally, the experiment station produced on its fields, where the experiments were conducted on a large scale, an average of about twenty bushels per acre. This was due to thorough and careful tillage of the soil by which the moisture was conserved and made available to the plants. The plants at the station were of normal size and had a large root development. The difference between plants grown under the two systems of tillage was effectively shown in an exhibit made by the station at the State Fair, in which the roots of a number of large and of small plants were washed out and displayed in root cases. This result has made a great impression on North Dakota farmers, who undoubtedly will be more careful in the cultivation of their wheat hereafter in dry seasons.

In Minnesota the experiments have shown that Indian corn may be successfully grown as a forage crop in a dry season, even if planted after it is clear that the wheat is to be a failure. Following the advice of the station in this regard the past season, thousands of acres of forage corn was profitably grown by Minnesota farmers, and the loss of their wheat crop was thus in a measure repaired.

In Arizona the station has been making tests of varieties of barley for hay with the result that one variety has been discovered which is much superior to any previously grown in Arizona, a discovery which is believed to worth thousands of dollars to the stockmen of the Salt River Valley, in which the experiments were made.

In Connecticut the station has been making experiments on the curing and fermentation of tobacco, and the growing of Sumatra tobacco in cooperation with the Division of Soils of the Department of Agriculture. This work has recently given such promising results that it is believed that a good Sumatra tobacco may be produced in Connecticut, thus contributing very largely to the prosperity of the tobacco growers in that state.

The station in Indiana has been at work on remedies for corn smut, and has shown that this disease may be in a great measure prevented by the use of Bordeaux mixture.

The Iowa station has been studying the various breeds of hogs, and especially those used in Great Britain for the production of a high grade of bacon. The results already obtained indicate that the British bacon breeds may be grown successfully and profitably under the agricultural conditions of the Mississippi Valley states. This station has also recently studied the methods of rearing calves on separator skim milk, and has brought out a report which shows just what results can be obtained from calves handled in this manner. This investigation has excited much populuar interest, and inquiries for the station's bulletins on this subject have come from many states.

In the State of Maine there is a very thriving agricultural community in Aroostook County, where the land has been cleared of trees and stumps within the past twenty-five years, and the growing of potatoes has been undertaken on a large scale. This crop is especially subject to fungus diseases which are likely to destroy it at a critical stage in its growth. The Maine experiment station has taken hold of this problem and has materially aided the potato growers in their efforts to combat these diseases. The station has thus very largely increased its influence among practical men.

So successful has been the work of the Michigan station with reference to the growing of sugar beets in that state that nine sugar factories have been established there and others are in course of erection. Forage plants new to the state, such as cowpeas and soy beans, are being brought into considerable prominence by the work of this station.

The Kansas station has made an interesting experiment in transferring soil from one locality to another for the purpose of inoculating the soil with the right kind of bacteria to promote the growth of soy beans, and it is claimed that a way has been devised for making this practicable on a large scale.

The Missouri station, along with the Texas station and the Bureau of Animan Industry of the department, has been engaged for a number of years in investigations with reference to the prevention of Texas fever. This work has been brought down to an entirely practical basis, enabling valuable breeding cattle to be inoculated and then taken into the Texas fever belt with almost entire safety. Station officers inoculated over five hundred animals during the past winter. The result has already had a notable effect on the business of the breeders as evidenced by letters which they have written to the stations. The discovery of a means by which cattle may be moved from the North to the South will mean millions of dollars to the cattle breeders and owners, and will result in a much-needed improvement of the cattle fed in the South, and in the stock kept for dairy purposes.

For a number of years the Wisconsin experiment station has studied the possibility of the profitable raising of sheep and lambs for mutton under local conditions. Special attention has been pand to raising different crops to insure satisfactory forage and to raising lambs for the early spring market. These investigations have given results which are of more than local interest and value.

At the Kansas and Rhode Island stations experiments have recently been made with reference to the methods of securing extra early potatoes. This is an important matter in market gardening, as a difference of two or three days, or a week, in placing a crop upon the market often makes the difference between profit and loss. The publications of these stations on this subject show very interesting results, indicating that with careful methods it is possible to secure the object sought after.

The stations have done a large amount of work with reference to the determination of profitable and unprofitable cows in dairy herds. This is a very important matter, for a competent authority stated about five years ago in the Yearbook of the Department that "good judges believe that in the entire country one third of the cows kept for their milk do not pay for their cost of keeping and nearly a third more fail to yield annual profit."

The Wisconsin station recently made a series of tests of the herds of six patrons furnishing milk to the dairy school creamery. These patrons had never kept any record of the yield or quality of the milk of their cows. These herds, it is stated, "are undoubtedly a fair representation of the 840,000 cows that produce the butter and cheese of this state." In these experiments it was shown that the annual yield of milk for individual cows ranged from less than four thousand to over eight thousand pounds, and the butter fat from about one hundred and fifty pounds to three hundred and thirty-six pounds. The value of the product from the poorest cow was thirty-eight dollars and from the best, sixty dollars. The best cow gave a profit of about thirty-one dollars, while the poorest cow gave a profit of only eight dollars.

At the New Jersey station, in an experiment in which a herd of grade cows was used, the milk of the best cow gave a profit of about fifty dollars, while that of the poorest cow gave a profit of only thirteen cents.

Investigations of the stations on this subject have shown that the dairy farmer should find out not only what his herd collectively, but what each cow, is doing. The cows which are not paying for their keeping should be sold for beef, and calves raised from the best cows with a view to grading up the herd.

The New York Cornell station has developed a herd of twenty ordinary cows during the past twenty-five years, so that the average yield of milk per cow has risen from about three thousand pounds to over seven thousand five hundred pounds. It has also been shown that proper care and feeding may do a great deal to improve the milking qualities of otherwise poor cows.

The Kansas station had a herd of twenty common scrub cows, which were so handled as to give an average yield of five thousand seven hundred and seven pounds of milk, and two hundred and thirty-eight pounds of butter fat, while the records of eighty-two herds in one of the leading dairy sections of the state showed an average yield of only three thousand four hundred and forty-one pounds of milk and one hundred and five pounds of butter fat.

Several stations have been investigating the question as to the advisability of the early plowing for wheat. The results of the experiments have been quite uniform in showing that this is a good practice for fall wheat. It appears that early plowing, followed at intervals by harrowing, prevents the growth of weeds, conserves the moisture of the soil, keeps the soil in good tilth, and results in the formation of a seed bed best suited for the prompt germination and growth of the seed. The cost of preparing the ground is lessened, the yield of grain is increased, and the practice is financially profitable.

The Ohio station has been studying the principal grain, forage, fruit and vegetable crops of the state to determine the varieties and cultural methods best adapted to local conditions. The obstacles to the production of these crops in the state have also been investigated. This has necessitated studies on the life, history and distribution of injurious insects and fungi preliminary to discussing methods of repression. Along this line the station's investigations of cucumber mildew, peach curl and the chinch bug have especially been of much practical value to the farmers of the state. This station has also done a great work in calling the attention of the farmer to the importance of studying tuberculosis in cattle and has issued important publications on this subject. As a result of its work the state has recently given it funds with which it will undertake special investigations on this subject.

Under the immediate direction of its able director, with the efficient aid of the agriculturist, horticulturist, botanist and chemist, and the superintendents of the two substations, the Ohio station has carried on a very important investigation regarding the means for maintaining the fertility of the soils of the state. The work has been conducted in different sections of the state and has included mechanical and chemical analyses of soils, the use of different fertilizers, rotation of crops and experiments with corn, wheat, oats, grasses, clover and potatoes. The results obtained in this comprehensive investigation during twelve seasons have been published with considerable detail in Bulletin No. 110 of the station, which contains a large amount of data of great value to the Ohio farmers.

Not only does the Ohio station issue a relatively large number of publications on subjects of immediate interest to the farmers, but it carries on an enormous correspondence in answer to inquiries on special points, and does a large amount of work at the farmers' institutes. The Ohio station has been unusually successful in keeping in close touch with the farmers and working directly in their interests.

These examples may suffice to show that the work of our experiment stations has direct practical relation to the business of the farmer, and that they have been successful in obtaining results which are of value to practical men. There are some general ways in which the success of the stations in winning the confidence and support of the agricultural interests are shown to a marked degree. One of there is that the amount and variety of inspection service required of our experiment stations continue to grow from year to year. Beginning with commercial fertilizers, it now includes feeding stuffs, dairy products and other foods for man; creamery, glassware, insecticides, nursury stock, injurious insects, and plant and animal diseases. For a considerable period this matter affected only the stations in the East, where commercial fertilizers were largely used, but now it is a live matter in all sections of the country as there is no region which does not have some evil against which the agricultural public is demanding protection by inspection under national or state auspices. The people seem to regard the experiment stations as impartial and successful agencies for conducting this inspection, and in spite of the fact that it is somewhate doubtful whether such work really belongs to the stations, it is being constantly given to them.

Appreciating their value, the different states are more and more disposed to liberally supplement the annual funds and thus to extend and strengthen the investigations of the stations within their borders. This is done by specific appropriations for the stations or for special investigations, or by general appropriations to the colleges with which the stations are connected.

One notable instance of this has been the movement in Illinois, which grew largely out of the successful work of the experiment station. The legislature in that state has provided the college of agriculture with a much larger income, thus enabling better separation of the work of the college and station, and has provided for the erection of a building which will cost probably one hundred and fifty thousand dollars, for the use of the college and station. This building will be the largest single plant for agricultural instruction and research in this country.

At the University of Nevada, a building costing thirty-five thousand dollars, has been erected during the past year for the special use of the experiment station. In Texas, Washington, Kansas, Oklahoma, Tennessee and Minnesota important additions have been made to the equipment of the agricultural colleges and experiment stations. This shows that there is a growing demand for the extension of agricultural education and experimenting, and that the agricultural interests are waking up to the importance of this work and making this felt in the state legislatures in securing adequate provisions for the work of the stations and colleges.

In the state of Connecticut, a private citizen, Mr. William R. Lockwood, of Norwalk, has bequeathed to the station about eighty thousand dollars which is to be a permanent endowment, the income of which is to be applied to the promotion of agriculture by scientific investigation and experimenting, and by diffusion of knowledge of the practical results thereof among the people of the state of Connecticut. This is very encouraging as indicating that even the wealthy private citizens are coming to see the importance of the work of the stations sufficiently to aid financially in their maintenance.

Everywhere we find the mailing lists of the stations are growing, and their correspondence is becoming more extensive, and the demands for the services of their officers at farmers' institutes and other meetings is outrunning the ability of these men to meet them.

All these things show that the stations are meeting the needs of the farmers in their work, and that their advice is being sought more and more on practical questions.

The popularity of our stations is also reflected in the action of congress in voting money to the Department of Agriculture in larger amounts than formerly, which is to be spent in cooperation with the experiment stations in the different states and territories. During the past year much has been done towards organizing this work, and the department is now cooperating with the stations generally throughout the country. This work is quite varied in its nature and includes such things as tests of varieties of grasses and forage plants in many localities, special experiments with grasses and forage plants for the arid region, the improvement of range lands, breeding experiments with plants, experiments with hybrid orange trees, the culture of dates, tea, sugar beets and tobacco, the planting of forest trees, the nutrition of man and farm animals, the effect of feeding stuffs on the chemical composition and physical character of butter, studies of diseases of plants and animals, studies of alkali soils and seepage, the survey and mapping of soils and irrigation investigations.

The department and the stations are more closely affiliated than ever before, and are working very harmoniously together for the promotion of our best agricultural interests. With its world-wide association with governments, scientific institutions and agricultural organizations, and with its trained force of specialists, the department is bringing the stations advice, information and materials which greatly promote their work. The stations on the other hand, by their intimate knowledge of local conditions of agriculture and their close connection with the practical farmers and horticulturists throughout the country, are making the work of the department much more fully felt in all parts of the Union, and enabling it to direct its efforts in proper lines with the greatest practical outcome.

The great movement for the improvement of agriculture through systematic exxperiments has already reached a point where its operations affect all our varied agricultural interests. The work is more thoroughly organized than ever before, and is more definitely directed to practical ends. There is every reason to believe, therefore, that the twentieth century will see much greater results for the improvement of our agriculture through this enterprise than have heretofore been obtained. Already it is generally recognized that the United States has the most comprehensive and effective system of agricultural experimentation that exists in the world, and our great competitors in industrial fields are keenly alive to the fact that this agency is to be a powerful factor in determining our industrial supremacy in the future. They are studying our system very carefully, and in recent years are modeling their institutions after ours. We shall need, therefore, to see to it that our experiment stations are kept strictly to their work and are provided with the best equipment and the most thoroughly trained experts, in order that we may get the most out of their work for our farmers, and be sure to keep ahead in the great struggle for the control of the world's markets, into which we have now fully entered.

The President: Is there anything further to come before the Institute before we adjourn? If there is nothing further I wish to express to you gentlemen my appreciation of the kindness and courtesy which you have shown me during the two days which we have been associated here together, and I assure you it shall always form a bright spot in my memory. If there is nothing further I will entertain a motion to adjourn.

And thereupon the Institute adjourned without day.

ELEVENTH ANNUAL REPORT

OF

FARMERS' INSTITUTES

Held In Ohio during the Winter of 1900-1901.

The Farmers' Institute season of 1900-01 began Monday, December 3, 1900, and closed March 2, 1901, making thirteen weeks of Institute work. During the first three weeks, up to Christmas week, there were held eighteen Institutes each week, or fifty-four Institutes; Christmas week there were held eight Institutes; for the two succeeding weeks there were held fifty-one, and during the six weeks following that of the State Farmers' Institute there were held one hundred and forty-four, making two hundred and fifty-seven regular county Institutes, all told. There were established in the fall of 1900 two hundred and sixty regular Institutes; of these, the two appointed for Savannah, Ashland county, and Payne, Paulding county, were given up because of epidemic disease in those localities, and a third one, at Adario, Richland county, was postponed from February 4 and 5 to March 6 and 7 for the same reason; the latter, although held out of season, is reported as a regular Institute for the reason that the postponement was unavoidable. In addition to the above, reports have been received from twenty independent Institutes, and it is probable that several others have been held that have not been reported to this Department.

The Board is glad to be able to report that the interest taken in the Farmers' Institutes continues to increase, any report of want of interest from either local officers or state lecturers being exceedingly rare. There are now so many of these meetings in the state that few do not avail themselves of the benefits to be derived therefrom, and none need do so, no county having held less than two and many having held three or four Institutes during the season. In its anxiety to make the institution as widespreading as possible, the Board has furnished speakers for so many Institutes as to have slightly exceeded the per capita allowance provided for the payment of their services, and this excess, together with the expense of the State Farmers' Institute and cartage and freight on boxes of Agricultural Reports and other books sent to the Institutes for distribution, has created a deficit of two hundred and eighty-one dollars and twenty cents ($281.20) to be met by the State Board of Agriculture, as may be seen by referring to the financial statement in this report. Of this deficit, no part is for postage, which in itself is a considerable item, so it will be seen that the Board is sparing no pains or expense in bringing the Farmers' Institutes to a high degree of excellence.

The State Farmers' Institute, held at Columbus, January 15 and 16, 1901, was a decided success in every particular. Many able speakers of this and of other states presented papers on valuable subjects, and were listened to by an earnest and interested audience, composed for the most part of representative farmers of the state. The custom of holding no other Institutes during that week was adhered to, that being considered by the Board to be for the best interests of Institute managers and lecturers.

In accordance with instructions contained in the law governing Farmers' Institute Societies, the Board publishes herewith a detailed statement of receipts and expenditures for the season of 1900-01; also papers read at several Institutes, embracing subjects of interest to farmers, stockmen and their families. Several interesting papers have been forwarded for examination with a view to their publication that could not be published because of their being too local in their application or for the reason that articles on similar lines of thought had already been accepted or recently printed in other reports.

It is a source of great gratification to the Board that it is able to make such a flattering report, and it wishes to add that the Farmers' Institute has long since passed the stage of doubtful experiment, and there is no reason to expect less than an increasing success from season to season.

By direction of the State Board of Agriculture.

WELLS W. MILLER, Secretary.

Columbus, Ohio, March 28, 1901.

FINANCIAL STATEMENT.

The following statement shows the receipts and disbursements of the Ohio State Board of Agriculture on account of Farmers' Institutes for the season of 1900-01, held under the law passed April 26, 1890, and amended April 27, 1896.

RECEIPTS.

Amounts collected from the counties on the basis of three mills per capita, being for the State Board's proportion of the six mills per capita allowance provided by the law for the maintenance and support of County Institute Societies in Ohio:

Adams County	$	78 98
Allen County		125 00
Ashland County		63 55
Ashtabula County		125 00
Athens County		116 19
Auglaize County		93 58
Belmont County		125 00
Brown County		84 71
Butler County		125 00
Carroll County		50 43
Champaign County		79 93
Clark County		125 00
Clermont County		94 83
Clinton County		72 61
Columbiana County		125 00
Coshocton County		88 01
Crawford County		101 74
Cuyahoga County		125 00
Darke County		125 00
Defiance County		79 16
Delaware County		79 20
Erie County		112 95
Fairfield County		102 78
Fayette County		65 17
Franklin County		125 00
Fulton County		68 40
Gallia County		83 75
Geauga County		44 23
Greene County		94 84
Guernsey County		103 27
Hamilton County		125 00
Hancock County		125 00
Hardin County		93 56
Harrison County		61 46
Henry County		81 85
Highland County		92 95
Hocking County		73 19

Holmes County	58 53
Huron County	96 99
Jackson County	102 74
Jefferson County	125 00
Knox County	83 30
Lake County	65 04
Lawrence County	118 60
Licking County	125 00
Logan County	91 26
Lorain County	125 00
Lucas County	125 00
Madison County	61 77
Mahoning County	125 00
Marion County	86 03
Medina County	65 87
Meigs County	85 86
Mercer County	84 06
Miami County	125 00
Monroe County	81 09
Montgomery County	125 00
Morgan County	53 71
Morrow County	53 64
Muskingum County	125 00
Noble County	58 40
Ottawa County	66 64
Paulding County	82 58
Perry County	95 52
Pickaway County	81 05
Pike County	54 52
Portage County	87 74
Preble County	71 14
Putnam County	97 57
Richland County	125 00
Ross County	122 82
Sandusky County	102 93
Scioto County	122 94
Seneca County	123 49
Shelby County	73 87
Stark County	125 00
Summit County	125 00
Trumbull County	125 00
Tuscarawas County	125 00
Union County	67 03
Van Wert County	91 18
Vinton County	45 99
Warren County	76 75
Washington County	125 00
Wayne County	113 61
Williams County	74 86
Wood County	125 00
Wyandot County	63 37
Total	$8,373 81

DISBURSEMENTS.

For per diem and expenses of lecturers, as follows:

Allen, F. L., Kinsman, five weeks	$ 243 40
Begg, John, Columbus Grove, seven weeks and four days	372 05
Bradfute, O. E., Cedarville, two weeks	100 00
Chapman, E. F., Huntington, three weeks	131 52
Cowden, W. N., Quaker City, seven weeks	328 40
Dean, Robert L., Xenia, R. D. No. 2, two weeks	97 20
Derthick, F. A., Mantua, nine weeks	435 87
Dobie, J. Al., Gutman, eight weeks and four days	428 15
Dunlap, R. W., Kingston, two weeks	82 50
Ellis, S. H., Waynesville, eight weeks and four days	418 88
Farnsworth, W. G., Waterville, four weeks and three days	226 04
Farnsworth, W. W., Waterville, three days	33 05
Freeman, C. M., Tippecanoe City, R. D. 64, six weeks	312 53
Gould, John, Aurora Station, three weeks and four days	181 57
Housekeeper, G. C., Bowling Green, six weeks	291 70
Kelley, Henry S., Geneva, five weeks	258 40
Laylin, T. C., Norwalk, eight weeks and four days	409 20
Miller, H. P., Sunbury, seven weeks and four days	363 45
Miller, T. J., Leipsic, six weeks	289 82
Montgomery, Cary W., Newark, three weeks	146 00
Reamer, C. L., Coshocton, two weeks	91 55
Roudebush, Lowell, Owensville, seven weeks and four days	344 57
Scott, Geo. E., Mt. Pleasant, seven weeks	361 35
Shawver, John L., Bellefontaine, seven weeks and four days	370 97
Snyder, E. P., Peru, two weeks	80 56
Thomas, M. C., Mingo, two weeks	81 85
Todd, S. H., Wakeman, nine weeks	429 30
Trumbo, E., Cranberry, six weeks	301 58
Wagner, C. R., Arlington, two weeks	87 20
Wallace, R. H., Chillicothe, nine weeks	418 85
White, A. L., Norwich, six weeks	286 35
White, R. Y., Chandlersville, two weeks	100 85
Williams, C. G., Gustavus, five weeks	273 75
Total	$ 8,378 46

MISCELLANEOUS.

Printing and sundry expenses for State Farmers' Institute, held at Columbus, January 15, 16, etc	$240 43
Cartage on boxes of books and freight	36 12
Total	$8,655 01
Excess of disbursements over receipts, met by the State Board of Agriculture	$281 20

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 3, 1900, AND ENDING MARCH 2, 1901.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by the Society.	Per Capita Allowance to Institute Societies under the Institute Law.
		Where.	When.			
Adams	26,328	Peebles	December 3-4	290	$42 95	$78 98
		Cherry Fork	December 17-18	400	25 40	....
Allen	47,976	Delphos	December 10-11	350	68 00	125 00
		Spencerville	January 23-24	250	18 01	....
		Harrod	February 4-5	325	35 00	....
		Bluffton	March 1-2	600	37 50	....
Ashland	21,184	Loudonville	January 23-24	270	27 00	63 55
		* Savannah	February 15-16	....	....	....
Ashtabula	51,448	Pierpont	December 10-11	300	31 25	125 00
		Andover	January 2-3	475	31 25	....
		Geneva	January 4-5	375	31 25	....
		Ashtabula	February 15-16	130	31 25	....
Athens	38,730	Coolville	December 3-4	200	24 51	116 19
		Athens	February 6-7	250	25 85	....
		Albany	February 25-26	230	28 90	....
		Amesville	February 27-28	250	26 37	....
Auglaize	31,192	Kossuth	December 14-15	300	28 10	93 58
		† Uniopolis	February 6-7	325	31 10	....
		Cridersville	February 22-23	400	48 59	....
Belmont	60,875	Colerain	December 28-29	400	61 80	125 00
		Belmont	January 28-29	400	60 00	....
		Barnesville	February 25-26	400	41 90	....
Brown	28,237	Fayetteville	December 7-8	500	20 00	84 71
		Feesburg	December 19-20	456	29 80	....
		Union Plains	January 2-3	450	28 23	....
Butler	56,870	Collinsville	December 14-15	260	31 25	125 00
		Oxford	January 21-22	200	22 65	....
		Monroe	January 28-29	300	24 10	....
		Ross	February 20-21	175	31 25	....

		Malvern	January 30-31	400	15 55	....
Champaign	26,612	Westville	December 21-22	300	29 50	79 93
		Rosewood	February 8-9	300	13 50	....
		Cable	February 20-21	300	22 65	....
Clark	58,939	South Charleston	December 10-11	300	18 85	125 00
		New Carlisle	February 6-7	300	31 25	....
		Vienna Crossroads	February 11-12	275	22 10	....
		Tremont City	February 18-19	200	31 25	....
Clermont	31,610	Moscow	December 21-22	100	22 78	94 83
		Amelia	December 31, Jan. 1	500	23 70	....
		Lerado	January 4-5	400	23 70	....
		Williamsburg	February 1-2	375	23 85	....
Clinton	24,202	Blanchester	January 30-31	600	34 30	72 61
		New Vienna	February 11-12	450	32 20	....
Columbiana	68,590	Lisbon	December 7-8	600	41 66	125 00
		Damascus	January 28-29	300	31 00	....
		East Fairfield	March 1-2	400	24 07	....
Coshocton	29,337	Keene	December 5-6	350	26 16	88 01
		New Guilford	January 21-22	300	25 90	....
		Plainfield	February 4-5	200	25 75	....
Crawford	33,915	New Washington	December 26-27	400	31 92	101 74
		Galion	January 7-8	450	39 01	....
		Bucyrus	February 1-2	600	35 00	....
Cuyahoga	439,120	Euclid	December 14-15	200	26 56	125 00
		Strongsville	January 4-5	400	34 47	....
		Chagrin Falls	January 23-24	140	31 25	....
		Dover	February 11-12	200	32 87	....
Darke	42,532	Greenville	December 17-18	200	24 80	125 00
		Versailles	January 7-8	450	31 15	....
		Arcanum	January 9-10	200	31 25	....
		New Madison	February 20-21	300	42 00	....
Defiance	26,387	Hicksville	December 10-11	250	34 04	79 16
		Ney	January 2-3	175	21 67	....
		Defiance	March 1-2	350	26 38	....
Delaware	26,401	Delaware	January 28-29	350	40 00	79 20
		Sunbury	February 22-23	400	37 10	....
Erie	37,650	Castalia	January 21-22	400	35 46	112 95
		Berlin Heights	February 1-2	280	48 00	....
		Milan	February 22-23	400	35 46	....
Fairfield	34,259	Baltimore	December 31, Jan. 1	400	32 50	102 78
		Amanda	January 7-8	1,250	31 80	....
		Pleasantville	February 6-7	600	42 40	....
		Carroll	February 25-26	400	17 00	....
Fayette	21,725	Bloomingburg	January 2-3	250	22 30	65 17
		New Martinsburg	January 23-24	250	21 50	....
		Goodhope	February 13-14	400	21 80	....

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* Not held because of epidemic disease.

† Originally appointed at St. Johns, but changed to Uniopolis.

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 3, 1900, AND ENDING MARCH 2, 1901—Continued.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by the Society.	Per Capita Allowance to Institute Societies under the Institute Law.
		Where.	When.			
Franklin	164,460	Hilliard	December 12-13	80	31 25	125 00
		Pleasant Corners	December 31, Jan. 1	300	30 70	....
		Westerville	February 13-14	188	30 84	....
		Canal Winchester	February 15-16	450	43 10	....
Fulton	22,801	Wauseon	December 14-15	375	14 55	68 40
		Fayette	January 9-10	250	27 70	....
		Delta	February 4-5	600	22 75	....
Gallia	27,918	Thivener	December 5-6	260	15 60	83 75
		Mills Station	January 2-3	350	25 50	....
Geauga	14,744	Chardon	January 21-22	350	43 77	44 23
Greene	31,613	Jamestown	January 4-5	400	41 47	94 84
		Xenia	January 25-26	500	81 00	....
		Cedarville	February 27-28	500	16 25	....
Guernsey	34,425	Cambridge	January 11-12	300	39 80	103 27
		Quaker City	January 30-31	350	44 00	....
Hamilton	409,479	Cleves	December 10-11	500	31 25	125 00
		Blueash	December 12-13	400	81 25	....
		Newtown	January 30-31	325	31 25	....
		Mt. Healthy	February 22-23	300	32 35	....
Hancock	41,993	Mt. Blanchard	December 21-22	500	34 46	125 00
		Benton Ridge	January 2-3	500	31 25	....
		Arcadia	January 25-26	400	18 00	....
		McComb	February 18-19	400	38 15	....
Hardin	31,187	Ada	January 4-5	900	37 65	93 56
		Forest	February 11-12	600	43 85	....
Harrison	20,486	Freeport	February 6-7	800	85 00	61 46
		Cadiz	March 1-2	800	150 00	....

Henry	27,282	Deshler	December 31, Jan. 1	300	29 00	81 85
		Ridgeville Corners	January 4-5	150	27 28	....
		Grelton	February 27-28	450	42 17	....
Highland	30,982	Mowrystown	December 5-6	400	29 04	92 95
		Rainsboro	January 11-12	400	30 98	....
		Hillsboro	February 1-2	600	30 00	....
Hocking	24,398	Logan	December 21-22	200	19 40	73 19
		Laurelville	February 20-21	300	48 56	....
Holmes	19,511	Killbuck	December 19-20	380	29 05	58 53
		Holmesville	February 11-12	300	29 26	....
Huron	32,330	Greenwich	December 21-22	400	27 75	96 99
		Wakeman	December 31, Jan. 1	310	25 47	....
		New London	January 28-29	475	30 70	....
Jackson	34,248	Camba	December 7-8	225	21 00	102 74
		Jackson	February 18-19	350	15 18	....
Jefferson	44,357	Richmond	December 26-27	700	87 00	125 00
		Smithfield	February 8-9	300	108 73	....
		Mt. Pleasant	February 27-28	400	78 65	....
Knox	27,768	Esto	December 17-18	400	30 00	83 30
		Mt. Vernon	January 11-12	300	34 99	....
		Fredericktown	January 23-24	450	23 75	....
Lake	21,680	Perry	December 12-13	165	33 30	65 04
		Painesville	February 13-14	500	35 00	....
Lawrence	39,534	Rockwood	December 3-4	300	9 95	118 60
		Windsor Chapel	December 31, Jan. 1	100	14 04	....
Licking	47,070	Jersey	December 14-15	350	35 60	125 00
		Utica	January 21-22	200	21 75	....
		Brownsville	February 4-5	200	32 00	....
		Granville	February 20-21	200	40 00	....
Logan	30,420	Bellefontaine	January 11-12	250	30 42	91 26
		West Mansfield	January 28-29	330	26 20	....
		De Graff	February 18-19	400	27 38	....
Lorain	54,857	Wellington	December 19-20	170	40 06	125 00
		North Ridgeville	January 2-3	365	41 24	....
		Copopa	January 30-31	500	31 82	....
Lucas	153,559	Java	December 17-18	250	31 25	125 00
		Sylvania	January 11-12	300	31 25	....
		Holland	February 6-7	350	31 25	....
		Waterville	February 25-26	200	31 25	....
Madison	20,590	Plain City	February 1-2	300	30 00	61 77
		London	March 1-2	450	29 85	....
Mahoning	70,134	Canfield	December 5-6	375	31 25	125 00
		Berlin Center	January 7-8	200	31 25	....
		North Lima	February 1-2	300	30 52	....
		Rosemont	February 27-28	400	31 25	....
Marion	28,678	Caledonia	January 9-10	350	28 67	86 03
		Marion	February 6-7	300	28 67	....
		Waldo	February 13-14	500	28 67	....
Medina	21,958	Chatham	December, 17-18	225	12 80	65 87
		Poe	January 25-26	250	21 65	....
		Malletcreek	February 13-14	600	21 85	....

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 3, 1900, AND ENDING MARCH 2, 1901—Continued.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by the Society.	Per Capita Allowance to Institute Societies under the Institute Law.
		Where.	When.			
Meigs	28,620	Chester	December 7-8	250	24 80	85 86
		Racine	January 4-5	300	25 25	....
		Dyesville	February 4-5	300	16 15	....
Mercer	28,021	Wabash	January 25-26	344	21 15	84 06
		Fort Recovery	February 18-19	350	28 00	....
		Neptune	February 20-21	250	11 80	....
Miami	43,105	Piqua	December 19-20	350	48 00	125 00
		West Charleston	December 26-27	300	31 70	....
		Covington	February 4-5	800	31 25	....
		West Milton	February 22-23	500	42 33	....
Monroe	27,031	Woodsfield	December 14-15	100	24 90	81 09
		Beallsville	February 27-28	300	40 28	....
Montgomery	130,146	Brookville	December 28-29	600	60 00	125 00
		Vandalia	January 11-12	400	31 25	....
		Germantown	January 23-24	360	45 90	....
		Centerville	February 8-9	400	32 00	....
Morgan	17,905	Chesterhill	December 5-6	200	22 07	53 71
		Triadelphia	March 1-2	275	26 85	....
Morrow	17,879	Sparta	January 7-8	400	26 00	58 64
		Cardington	January 30-31	500	26 82	....
Muskingum	53,185	Dresden	December 7-8	275	31 25	125 00
		Whitecottage	January 2-3	400	70 56	....
		Norwich	February 1-2	400	45 85	....
		Chandlersville	February 18-19	550	42 95	....
Noble	19,466	* Sharon	December 12-13	200	15 00	58 40
		Summerfield	March 1-2	450	51 55	....
Ottawa	22,213	Elmore	January 21-22	250	33 32	66 64
		Port Clinton	February 15-16	300	28 76	....

Paulding	27,528	Antwerp	December 31, Jan. 1	200	27 52	82 58
		† Payne	February 4-5	....	....	....
		Oakwood	February 25-26	500	27 52	....
Perry	31,841	Rehoboth	December 7-8	500	31 15	95 52
		Sayre	January 4-5	350	31 84	....
		Mt. Perry	February 27-28	300	40 00	....
Pickaway	27,016	Williamsport	January 9-10	360	37 00	81 05
		Tarlton	February 8-9	350	26 93	....
		Ashville	February 15-16	800	35 00	....
Pike	18,172	Idaho	December 26-27	250	21 00	54 52
		Piketon	January 7-8	300	12 70	....
Portage	29,246	Randolph	January 11-12	260	10 45	87 74
		Mantua Station	January 25-26	150	27 86	....
		Edinburg	January 30-31	200	19 61	....
Preble	23,713	Eaton	January 7-8	480	25 40	71 14
		Eldorado	January 25-26	500	25 25	....
		Camden	February 18-19	600	24 90	....
Putnam	32,525	Continental	January 21-22	640	26 50	97 57
		Rimer	February 8-9	450	32 52	....
		Leipsic	February 27-28	800	69,35	....
Richland	44,289	Butler	January 9-10	450	19 06	125 00
		Lucas	January 25-26	300	26 75	....
		Lexington	February 15-16	500	26 00	....
		‡ Adario	March 6-7	300	48 00	....
Ross	40,940	Bainbridge	January 9-10	300	30 00	122,82
		Kingston	January 11-12	175	44 45	....
		South Salem	January 21-22	200	26 55	....
		Frankfort	February 22-23	200	37 50	....
Sandusky	34,311	Clyde	January 23-24	650	45 00	102 93
		Fremont	February 13-14	1,000	57 50	....
Scioto	40,981	Haverhill	December 3-4	250	24 75	122 94
		Scioto	December 5-6	150	23 50	....
		Mt. Joy	December 28-29	200	6 00	....
Seneca	41,163	Bloomville	December 28-29	400	41 16	123 49
		Tiffin	January 25-26	600	58 00	....
		Greenspring	February 20-21	450	40 50	....
Shelby	24,625	Sidney	January 9-10	140	35 15	73 87
		Jackson Center	February 20-21	450	28 40	....
Stark	94,747	Alliance	January 9-10	200	22 25	125 00
		Marlboro	January 21-22	300	27 36	....
		New Berlin	February 13-14	400	31 25	....
		Beach City	February 25-26	275	29 50	....
Summit	71,715	Inland	January 23-24	450	40 00	125 00
		North Springfield	February 11-12	350	41 58	....
		Osborn Corners	February 15-16	350	41.66	....
Trumbull	46,591	Vernon	December 3-4	250	31 25	125 00
		Fowler	December 31-January 1	250	31 25	....
		Newton Falls	January 28-29	400	31 25	....
		Howland	February 25-26	280	22 25	....

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* **Originally appointed at Belle Valley, *but* changed to Sharon.**

† **Not held because of epidemic disease.**

‡ **Postponed from February 4-5 because of epidemic disease.**

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 3, 1900, AND ENDING MARCH 2, 1901—Concluded.

Counties.	Population.	Institutes Held. Where.	Institutes Held. When.	Attendance Reported.	Local Expenses Reported by the Society.	Per Capita Allowance to Institute Societies under the Institute Law.
Tuscarawas	53,751	Shanesville	December 3-4	125	30 60	125 00
		Port Washington	January 9-10	195	30 50	
		Bolivar	February 1-2	155	30 10	
		Canal Dover	February 15-16	255	55 25	
Union	22,342	Marysville	January 30-31	400	33 30	67 03
		Richwood	February 22-23	500	33 65	
Van Wert	30,394	Ohio City	December 12-13	150	12 00	91 18
		Convoy	February 6-7	500	29 60	
		Van Wert	February 22-23	225	27 51	
Vinton	15,330	Wilkesville	December 17-18	250	24 11	45 99
		New Plymouth	December 19-20	100	13 65	
Warren	25,584	Morrow	January 28-29	365	47 45	76 75
		Franklin	February 18-19	400	54 25	
		Waynesville	February 25-26	400	25 82	
Washington	48,245	Lower Salem	December 10-11	200	34 50	125 00
		Bartlett	February 8-9	200	38 55	
		Watertown	March 1-2	375	40 55	
Wayne	37,870	Shreve	December 21-22	500	28 40	113 61
		Wooster	January 25-26	500	57 10	
		Creston	February 11-12	300	28 40	
		Lattasburg	February 13-14	300	28 25	
Williams	24,953	Bryan	December 12-13	340	26 35	74 86
		Montpelier	January 7-8	600	25 70	
Wood	51,555	Bowling Green	December 19-20	300	31 25	125 00
		Prairie Depot	January 23-24	400	47 72	
		Grand Rapids	February 8-9	380	41 64	
		Bloomdale	February 11-12	250	26 15	
Wyandot	21,125	Nevada	January 11-12	500	28 20	63 87
		Upper Sandusky	February 8-9	800	32 10	
Totals				92,478	$8,476 37	$8,373 81

INDEPENDENT INSTITUTES.

Counties.	Institutes Held.		Attendance Reported.	Local Expenses Reported by Society.
	Where.	When.		
Ashland	Polk	February 7-8	300	$35 80
Auglaize	Buckland	March 7-8	200	36 70
Belmont	Loydsville	March 1-2	300	45 00
Brown	Decatur	January 4-5	350	42 50
Champaign	Mechanicsburg	February 22-23	550	43 26
Clark	Pitchin	March 5-6	300	36 60
Clermont	Mulberry	March 1-2	300	27 94
Geauga	Middlefield	February 1	250	23 20
Hancock	Rawson	March 7-8	220	32 55
Huron	East Townsend	January 24-25	500	29 63
	Monroeville	February 6-7	200	23 00
Knox	Danville	February 1-2	250	40 00
	Centerburg	February 7-8	200	68 04
Lake	Willoughby	December 12-13	125	27 50
Medina	Brunswick	December 14-15	275	37 13
Muskingum	New Concord	March 5-6	400	80 00
Preble	New Paris	January 11-12	400	75 50
	Lewisburg	February 1-2	380	56 85
Putnam	Ottawa	January 25-26	850	60 00
Trumbull	Loys Corners	December 28	80	8 90
Totals			6.430	$830 10

RECAPITULATION.

1.	Amount collected by the State Board of Agriculture from the three mills per capita tax, from the eighty-eight (88) counties of the state, in all of which institutes were held	$8,373 81
2.	Amount allowable to two hundred and sixty (260) institute societies from the three mills per capita tax, from the eighty-eight (88) counties of the state, in all of which institutes were held	8,373 81
3.	Amount expended by the State Board of Agriculture in aid of two hundred and sixty (260) county institutes for lecturers	8,378 46
4.	Amount expended by county societies for expenses of two hundred and fifty-eight (258) institutes	8,476 37
5.	Total expenses of regular institutes	16,854 83
6.	Average expenditure, per institute, by the State Board of Agriculture for lecturers (260)	32 22
7.	Average expenditure, per institute, by societies (258)	32 85
8.	Total average expense per institute	65 07
9.	Total average number of persons in attendance at two hundred and fifty-eight (258) institutes	92,478
10.	Average number of persons in attendance at each	358.5
11.	Number of independent institutes reported	20
12.	Expense of twenty (20) independent institutes	830 10
13.	Average expense of twenty (20) independent institutes	41 55
14.	Total average number of persons attending twenty (20) independent institutes	6,430
15.	Average attendance at each of twenty (20) independent institutes	322

LECTURERS

EMPLOYED BY

THE OHIO STATE BOARD OF AGRICULTURE

FOR THE INSTITUTE SEASON OF 1900-1901, WITH POSTOFFICE ADDRESSES AND TOPICS.

F. L. Allen, Kinsman, Trumbull Co., O.

1. Maple Creek Farm, Its Management. Twenty minutes.
2. How We May Increase Fertility. Thirty minutes.
3. Farm Improvement. Twenty-five minutes.
4. Silos and Silage. Twenty-five minutes.
5. The Breeding and Feeding of Beef Cattle. Thirty Minutes.
6. The Wheat Crop. Twenty minutes.
7. The Potato Crop. Twenty minutes.
8. Saving and Applying Manures. Twenty-five minutes.
9. Commercial Fertilizers; Home Mixing. Twenty-five minutes.
10. The American Farmer; Past, Present and Future. Forty minutes. Night.
11. Some Profitable Investments. Forty minutes. Night.

John Begg, Columbus Grove, Putnam Co., O.

1. Practical Methods in Corn Culture. Twenty-five minutes.
2. Raising Hogs for Market. Twenty minutes.
3. Selecting and Feeding Cattle in Winter. Twenty minutes.
4. Tile Drainage; Its Value and How Best Done. Twenty-five minutes.
5. Practical Methods in Keeping up Soil Fertility. Twenty minutes.
6. Raising Stock Cattle; Does It Pay? Fifteen minutes.
7. Wheat; Its Value, Culture and Care. Twenty-five minutes.
8. Good Roads, How Made and Their Value to a Community. Twenty-five minutes.
9. Landlord and Tenant, and Their Relation to Each Other. Thirty minutes. Day or night.
10. The Farm Home and What It Should Be. Thirty-five minutes. Night.
11. Sunshine and Shadow on the Farm. Forty minutes. Night.
12. Our Country Schools; Are They Up to Date? Thirty minutes. Night.

O. E. Bradfute, Cedarville, Greene Co., O.

1. The Modern Beef Animal, Form and Type. Thirty minutes.
2. The Modern Beef Animal; How Produced. Thirty minutes.
3. The Value of a Pedigree. Thirty minutes.
4. The Agricultural Fair. Thirty minutes.

5. An Up-to-Date Stock Farm. Thirty minutes.
6. Free Rural Mail Delivery. Thirty minutes.
7. The Calf. Thirty minutes.
8. Management of a Herd of Pure Blood Cattle. Thirty minutes.
9. Various Breeds of Cattle, Historical and Descriptive. Thirty minutes.
10. Special vs. General Purpose Cattle. Thirty minutes.
11. Why am I a Farmer? Forty-five minutes. Night.

E. F. Chapman, Huntington, Lorain Co., O.

1. Breeding Dairy Cows. Twenty minutes.
2. Feeding Dairy Cows. (Illustrated.) Twenty-five minutes.
3. Raising Calves. Twenty minutes.
4. Special or Mixed Farming, Which? Twenty-five minutes.
5. How Much Mechanical Work Shall the Farmer Do? Twenty minutes.
6. Extensive or Intensive Agriculture. Twenty minutes.
7. Plants; What They Take from the Soil and How Replaced. (Illustrated.) Thirty minutes.
8. The Farmer's Garden. Twenty minutes.
9. How Deep Shall We Plow? Twenty minutes.
10. Weather Predictions. (Illustrated.) Twenty-five minutes.
11. The Farmer's Home. Thirty minutes. Night.
12. Agricultural Education. Thirty minutes. Night.
13. The Old Century and the New. Thirty minutes. Night.

W. N. Cowden, Quaker City, Guernsey Co., O.

1. Is Sheep Husbandry as Profitable as Other Branches of Stock Raising? Twenty minutes.
2. Shall I Attend the State Fair, and Why? Fifteen minutes.
3. Under-draining Hill Land. Fifteen minutes.
4. Profitable Fruit Growing. Thirty minutes.
5. In the Peach Orchard for Profit. Twenty minutes.
6. Farming on or off the Farm, Which? Twenty-five minutes.
7. Laws Needed by Agriculture. Twenty minutes.
8. How to Retain Fertility and How to Regain Lost Fertility. Thirty minutes.
9. Principles of Breeding. Twenty-five minutes.
10. What Crops Shall the Farmer Sell, and What Crops Shall He Buy? (Illustrated.) Twenty minutes.
11. The Clover Plant. Twenty minutes.
12. Education Needed by the Farmer. Thirty minutes. Night.
13. Our Common Schools and Their Needs. Thirty minutes. Night.
14. How Taxation Affects the Farmer. Forty minutes. Night.
15. The Three Bells. Thirty minutes. Night.
16. Why Am I a Farmer? Twenty minutes. Night.
17. Wanted—A Man. Forty minutes. Night.

Robert L. Dean (R. D. No. 2), Xenia, Greene Co., O.

1. What Kind of Wheat Shall We Sow? Fifteen minutes.
2. The Clover Crop. Twenty minutes.
3. Farming to Advantage. Twenty minutes.
4. Finishing the Hogs for Market. Twenty-five minutes.
5. Planting a Lawn. Twenty minutes.

6. Rural Free Mail Delivery. Thirty minutes.
7. The Water Supply. Twenty minutes.
8. A Farmer's Vacation. Sixty minutes. Night.

F. A. Derthick, Mantua, Portage Co., O.

1. The Dairy; Its Profits and Perils. Forty minutes.
2. The Horse and How to Treat Him. Thirty minutes.
3. The Potato and How to Get It. Thirty minutes.
4. Diversity vs. Special Lines. Thirty minutes.
5. Farm Conveniences. Twenty minutes.
6. Why the Boy Leaves the Farm. Thirty minutes.
7. "The Bundle of Sticks." Thirty minutes.
8. The Mission of Farmers' Organization. Twenty-five minutes.
9. Farm Attractions. Forty minutes. Night.
10. What to Read and How to Read. Forty minutes. Night.
11. Why I am a Farmer. Twenty-five minutes. Night.
12. Loss and Damage from Adulteration of Food. Thirty-five minutes. Night.

J. Al. Dobie, Gutman, Auglaize Co., O.

1. Tile Drainage. Twenty-five minutes.
2. Buying and Using Farm Implements. Twenty minutes.
3. How to Make the Small Farm Pay. Thirty minutes.
4. Educating Farm Horses. Thirty minutes.
5. Barns and Outbuildings. Twenty-five minutes.
6. Breeding and Feeding Animals. Twenty minutes.
7. Improving Soil Texture. Thirty minutes.
8. Preparing Soil for Corn and Wheat. Twenty minutes.
9. Common Sense in Hog Growing. Thirty minutes.
10. Character. Fifty minutes. Night.

R. W. Dunlap, Kingston, Ross Co., O.

1. The Draft Horse. Fifteen minutes.
2. The Effect of Food on the Quality of Milk. Fifteen minutes.
3. Breeds of Cattle. Twenty minutes.
4. Raising a Corn Crop in the Scioto Valley. Fifteen minutes.
5. Marketing a Corn Crop in the Scioto Valley. Fifteen minutes.
6. Miscellaneous Little Things. Twenty-five minutes.
7. Operating a Thousand-Acre Farm. Twenty minutes.
8. Animal Mechanics. (Illustrated.) Twenty minutes.
9. How to Keep the Boy on the Farm. Fifteen minutes.
10. Education for the Farmer's Boy. Twenty-five minutes. Night.
11. The Farmer's Duty. Twenty-five minutes. Night.

S. H. Ellis, Waynesville, Warren Co., O.

1. The Corn Crop. Twenty-five minutes.
2. How to Grow and Market Hogs. Twenty-five minutes.
3. Farm Management. Twenty-five minutes.
4. The Bond of Union Among Farmers. Twenty-five minutes.
5. The State Board of Agriculture and Its Work. Thirty minutes.
6. The Origin, Growth and Benefits of Farmers' Institutes. Twenty minutes.
7. The Ohio Agricultural Experiment Station and its Work. (Illustrated.)

8. The Field and Feeding Experiments of the Experiment Station.
9. The Horticultural Work of the Experiment Station.
10. Experiment Station's Help to the Farmer in His War Against Weeds, Fungi and Insects.
11. The Ohio State University; Past, Present and Future. (Illustrated.)
12. Agricultural Training at the Ohio State University.
13. Domestic Science at the Ohio State University.

W. G. Farnsworth, Waterville, Lucas Co., O.

1. The Culture of Fruit by the Farmer. Twenty-five minutes.
2. Mutual Life Insurance for Farmers. Twenty-five minutes.
3. How We Grow and Handle Potatoes. Twenty-five minutes.
4. The Growing of Small Fruit from a Commercial Standpoint. Twenty minutes.
5. Pruning of Small Fruits and Orchards. Fifteen minutes.
6. Peach and Cherry Culture. Twenty minutes.
7. How We Maintain and Increase the Fertility of Our Soil. Twenty minutes.
8. How and When to Spray. Fifteen minutes.
9. The Farmer's Team. Twenty minutes.
10. Culture and Care of the Corn Crop. Twenty-five minutes.
11. Care and Management of Farm Help. Twenty minutes. Night.
12. Partnership on the Farm. Twenty minutes. Night.

C. M. Freeman Tippecanoe City (R. D. 64), Miami Co., O.

1. How Shall a Young Man Begin Farming? Twenty-five minutes.
2. Better Farming. Fifteen minutes.
3. Buying Fruit Trees. Twenty minutes.
4. Why Young Trees Die for Farmers. Twenty minutes.
5. Selecting Fruit to Plant. Fifteen minutes.
6. Some Business Requirements of the Farmer. Twenty-five minutes.
7. The Farmer's Door Yard. Twenty minutes.
8. Do Farmers Need to Organize? Twenty-five minutes.
9. Can We Afford Township High Schools? Forty minutes. Night.
10. Our Boys and Girls. Forty minutes. Night.

John Gould, Aurora Station, Portage Co., O.

1. The Old Corn Crib and the New. Thirty-five minutes.
2. Life on a Clay Farm. Forty-five minutes.
3. Feed Values of the Crops We Grow. Thirty minutes.
4. Principles of Corn Growth and Culture. Twenty-five minutes.
5. Types of Cows. (Illustrated.) Forty-five minutes.
6. Care of Cows and Stable Management. Forty minutes.
7. A General Dairy Talk. Forty minutes.
8. Centralized Schools. Thirty-five minutes. Night.
9. A Half Hour With a Farm Telephone. Thirty minutes. Night.
10. What a Rural Town is Doing for Itself. Thirty minutes. Night.
11. Changes in Feeding the World. Forty minutes. Night.
12. Our Neighbors in Feathers. Forty minutes. Night.
13. The Men Farmers Meet. Thirty-five minutes. Night.
14. Eight Battlefields of the Revolution. Forty-five minutes. Night.

G. C. Housekeeper, Bowling Green, Wood Co., O.

1. Rotary Farming; Why Best? Twenty minutes.
2. How to Grow and Get the Most Out of a Crop of Corn. Twenty minutes.
3. Growing and Marketing Potatoes. Twenty-five minutes.
4. Fruits for Home Use. Twenty minutes.
5. Growing Fruit for Market. Twenty minutes.
6. Our Weather Service; Its Methods and Value. Twenty-five minutes.
7. The Farmer and the Public School. Twenty minutes.
8. Advantages of Farming. Twenty minutes.
9. Reading for the Farmer's Family. Thirty minutes.
10. Our Sons and Daughters. Thirty minutes. Night.
11. Making Home and Farm Life Happier. Thirty minutes. Night.

Henry S. Kelley, Geneva, Ashtabula Co., O.

1. Care of Farm Animals. Twenty minutes.
2. Sheep and Early Lambs. Twenty minutes.
3. Farm Buildings. Twenty minutes.
4. Vealing Calves. Twenty-five minutes.
5. Disposing of Rough Feed Profitably. Twenty-five minutes.
6. Garden and Fruit. Twenty minutes.
7. It Must Be Gain or Loss. Thirty minutes. Night.
8. Are there Pleasures in Farming? Thirty minutes. Night.
9. What Constitutes a Good Farmer? Thirty minutes. Night.

T. C. Laylin, Norwalk, Huron Co., O.

1. Fifteen Minutes in the Oats Field. Fifteen minutes.
2. Fields and Fences. Twenty minutes.
3. Theory and Practice in Corn Culture. Twenty minutes.
4. Breeding and Management of Mutton Lambs. Twenty minutes.
5. Improving the Physical Condition of the Soil. Twenty minutes.
6. Keeping up the Fertility of the Farm. Twenty minutes.
7. The Farmer's Problem of Prices and Production. Forty-five minutes.
8. What Does It Cost? Thirty minutes.
9. The Value of Science to the Farmer. Thirty minutes.
10. Genius in Farming. Forty minutes. Night.
11. Our Boys. Forty-five minutes. Night.

H. P. Miller, Sunbury, Delaware Co., O.

1. The Care and Feeding of Young Animals. (Illustrated.) Twenty minutes.
2. Feeds and Feeding. (Illustrated by Charts.) Thirty minutes.
3. Training a Team. Twenty minutes.
4. The Care of a Team. Twenty minutes.
5. The Different Ways of Handling a Flock. Twenty-five minutes.
6. The Parasitic Enemies of Sheep. Twenty minutes.
7. Growing and Marketing the Hothouse Lamb. Twenty minutes.
8. Our Farming. Twenty-five minutes.
9. Employing Help on the Farm. Twenty minutes.
10. The Farm as a Home. Thirty minutes.
11. Bacteria. Twenty minutes. Night.
12. The Education for the Farmers' Children. Twenty-five minutes. Night.
13. The Farmer's Table. (Illustrated by Charts.) Twenty-five minutes. Woman's Session.

T. J. Miller, Leipsic, Putnam Co., O.

1. Does Underdraining Pay? Thirty minutes.
2. Poultry for Profit. Thirty minutes.
3. Clover, the Farmer's Friend. Thirty minutes.
4. The Value of Barnyard Manure, and How and When to Apply It. Thirty minutes.
5. Fertilizers. Thirty minutes.
6. Cattle Feeding for Profit. Thirty minutes.
7. Hog Feeding for Profit. Thirty minutes.
8. Shall We Grow Wheat? Thirty minutes.
9. Little Things on the Farm. Thirty minutes.
10. Program for the Farm. Thirty minutes.
11. The Farmer as a Citizen and a Factor in Our Country's Progress. Forty minutes. Night.
12. Woman's Mission. Forty minutes. Night.
13. Right Kind of Encouragement for Young People. Forty minutes. Night.

Cary W. Montgomery, Newark, Licking Co., O.

1. Clover. Twenty minutes.
2. Planting and Growing Fruit Trees. Twenty minutes.
3. How Plants Feed and Grow. Twenty minutes.
4. Soil Conditions Essential to Crop Production. Twenty minutes.
5. The Farmer's Fruit Garden. Twenty minutes.
6. Marketing Produce. Twenty minutes.
7. Potatoes. Fifteen minutes.
8. Melons. Fifteen minutes.
9. Rural Amusements. Twenty-five minutes. Night.
10. What Do We Owe to Our Community? Twenty-five minutes. Night.

C. L. Reamer, Coshocton, Coshocton Co., O.

1. Sanitary Engineering for the Farmer. (Illustrated.) Thirty minutes.
2. Country Roads and How to Make Them. (Illustrated.) Twenty-five minutes.
3. My Experience in Tile Draining. (Illustrated.) Twenty minutes.
4. What Architecture Can Do for the Farmer's Home. (Illustrated.) Thirty minutes.
5. The Old Landmarks, and How to Preserve Them. Thirty minutes.
6. The Farmer's Guests; a Plea for the Birds. Thirty minutes.
7. Why the Boy Will Not Stay on the Farm. Thirty to forty minutes. Night.
8. The Yankee Boy, or a Plea for the Boys. Thirty to forty minutes. Night.

Lowell Roudebush, Owensville, Clermont Co., O.

1. Gapes in Poultry. Fifteen minutes.
2. Some Common Mistakes in Raising Poultry. Twenty minutes.
3. The Farmer's Garden. Fifteen minutes.
4. Care and Management of Small Fruits. Twenty minutes.
5. Why Farmers Should Raise Sheep. Twenty minutes.
6. Is It Profitable to Raise Horses? If so, What Class? Twenty minutes.
7. Feeding Stock for Profit. Twenty minutes.
8. The Hessian Fly. Fifteen minutes.
9. The San José Scale. Fifteen minutes.
10. New Insects and Insecticides. Twenty minutes.
11. Noxious Weeds and Methods of Destroying Them. Twenty minutes.

12. Natural Enemies of Insect Pests. Twenty minutes.
13. Clover, Southern Cow Peas, Alfalfa; Which? Twenty minutes.
14. Uncle Sam's Land of the Midnight Sun. Thirty minutes. Night.
15. The Influence of Agriculture. Thirty minutes. Night.

George E. Scott, Mt. Pleasant, Jefferson Co., O.

1. Clover, Alfalfa or Cow Peas for Nitrogen? Twenty-five minutes.
2. Corn and Wheat Growing and Their Future Possibilities. Twenty-five minutes.
3. More and Better Live Stock for the Farm. Twenty-five minutes.
4. A Balanced Ration for the Family Table. Twenty-five minutes.
5. Making and Selling Gilt-edge Butter. Twenty-five minutes.
6. The Dairy Cow and How to Treat Her. Twenty-five minutes.
7. Fertilizers, Organic and Inorganic. Twenty-five minutes.
8. The Wife's Poultry Yard. Twenty-five minutes.
9. Hints on Planting and Growing Orchards. Twenty-five minutes.
10. Farm telephones. Twenty-five minutes.
11. Fads and Fancies. Thirty minutes. Night.
12. The Farm the Foundation for True Manhood. Thirty-five minutes. Night.

John L. Shawver, Bellefontaine, Logan Co., O.

1. The Farm Dairy. Thirty minutes.
2. Why Do Creameries Fail? Twenty-five minutes.
3. Feeds and Feeding. Thirty minutes.
4. Barns and How to Build Them. Forty minutes.
5. What Shall We Eat? Thirty minutes.
6. The Farmer as a Business Man. Twenty-five minutes.
7. Making, Saving and Applying Manures. Thirty minutes.
8. Mutual Insurance for Farmers. Twenty minutes.
9. A Plea for the Forest. Thirty minutes.
10. The Problem of Farm Help. Twenty-five minutes.
11. How to Discharge a Debt Secured by Mortgage. Thirty minutes. Night.
12. Seedtime and Harvest. (A talk to young people.) Fifty minutes. Night.

E. P. Snyder, Peru, Huron Co., O.

1. Wheat Growing and Marketing. Fifteen minutes.
2. Shall We Keep Sheep? Twenty minutes.
3. The Farmer's Relation to the Common School. Twenty minutes.
4. A Farmer's Way with Strawberries. Twenty minutes.
5. Small Fruits for the Farmer. Fifteen minutes.
6. Mutual Fire Insurance for Farmers. Fifteen minutes.
7. Some of the Possibilities of Farming. Forty minutes. Night.
8. Lights and Shadows of Soldier Life. Forty minutes. Night.

M. C. Thomas, Mingo, Champaign Co., O.

1. Our Farms. Fifteen minutes.
2. The Strawberry. Fifteen minutes.
3. The Farmer's Garden. Twenty minutes.
4. Swine Management for Profit. Twenty minutes.
5. The Management of a Clover Seed Crop. Fifteen minutes.
6. Fields and Fences. Fifteen minutes.
7. Cement Floors; Their Construction, Cost and Advantages. Twenty-five minutes.

8. Corn Culture. Twenty minutes.
9. Caring for the Corn Crop. Fifteen minutes.
10. An Enlightened Husbandry. Thirty minutes. Night.

S. H. Todd, Wakeman, Huron Co., O.

1. Potatoes: Their Culture, How to Prevent Blight and Scab. Twenty-five minutes.
2. Sheep Husbandry. Twenty-five minutes.
3. How I raised Twenty Bushels of Wheat Per Acre when My Townsmen Raised Only Five or Ten Bushels. Twenty-five minutes.
4. At What Age Shall the Farmer Put His Feeding Animals on the Market so as Not to Lose Money? Twenty-five minutes.
5. Deep Cultivation vs. Shallow Cultivation. Twenty-five minutes.
6. Buying and Using Fertilizers so as Not to Lose Money. Twenty-five minutes.
7. Fifty Years' Experience in Raising and Marketing Corn. Twenty-five minutes.
8. On Which Side of the Fence Am I Farming? Twenty-five minutes.
9. Care and Management of Sheep to Avoid Disease. Thirty minutes.
10. The Farmer's Garden. Twenty minutes.
11. The Farm and the Hired Man. Twenty-five minutes.
12. Poultry and the Egg Market. Twenty minutes.
13. Should the Farmer Raise Pure-bred Animals for the General Market; If Not, Why? Twenty minutes.
14. Animal Formation Decides Its Purpose. (Illustrated.) Thirty minutes.
15. My Experience with Clover. Twenty minutes.
16. Which of the Two is the More Important Crop, the Boys and Girls or the Stock? Sixty minutes. Night.
17. Slippery Places of Life. Fifty minutes. Night.

E. Trumbo, Cranberry, Allen Co., O.

1. Farmers' Institutes and the Benefit of Association. Twenty minutes.
2. Progressive Agriculture. Forty minutes.
3. Crops and Stock as Influenced by Seed, Soil and Climate. Thirty minutes.
4. Does the Farm Pay? Twenty-five minutes.
5. Can We Keep Up the Fertility of Our Soil and Sell All Our Farm Products? Twenty-five minutes.
6. Our County Fairs. Twenty minutes.
7. How We Should Use Our Surplus. Fifteen minutes.
8. Tree Planting and Why. Fifteen minutes.
9. The Advantages of Farm Life. Thirty minutes. Day or Night.
10. A Talk to the Young People. Thirty minutes. Day or Night.
11. How We Learn to Think. Forty-five minutes. Night.

C. R. Wagner, Arlington, Hancock Co., O.

1. Live Stock Essential to the Highest Type of Agriculture. Twenty minutes.
2. The Art of Breeding. Thirty minutes.
3. Sheep Husbandry: Its Sunshine and Shadow. Twenty-five minutes.
4. The Agricultural Fair; Its Failures and Their Remedies. Twenty minutes.
5. The Foundation Principles of Live Stock Breeding. Twenty minutes.
6. The Three Essentials in Live Stock Breeding. Thirty minutes.
7. The Farmer's Library. Twenty minutes. Night.
8. Our Country Home. Thirty minutes. Night.
9. The Power of Concentrated Thought. Fifteen minutes. Night.
10. The Country School. Thirty minutes. Night.

R. H. Wallace, Chillicothe, Ross Co., O.

1. Feeding for Profit. Thirty minutes.
2. Heredity in Animal Life. Twenty-five minutes.
3. Skill in Farming. Thirty minutes.
4. The Jersey Cow. Twenty-five minutes.
5. The Farm Dairy. Twenty-five minutes.
6. Excessive Freight Rates—Causes and Cures. Twenty-five minutes.
7. The State Board of Agriculture and Farmers' Institutes. Thirty minutes.
8. Will the Future King of Our Country Be Corn, Cotton or Wheat? Twenty minutes.
9. How to Treat Wornout Sandy Soils. Twenty minutes.
10. The Hessian Fly—History, Life, Habits and Enemies. Twenty minutes.
11. The Sowing and the Reaping. Forty minutes. Night.
12. What Constitutes a Farmer's Education? Forty minutes. Night.
13. Prehistoric Races of This Country. Forty minutes. Night.
14. What Shall Be Done with the Surplus of the Farm? Thirty minutes. Night.

A. L. White, Norwich, Muskingum Co., O.

1. Confidence in Our Work. Twenty-five minutes.
2. The Hen and Her Family. Fifteen minutes.
3. Swine Raising. Fifteen minutes.
4. Skilled Labor on the Farm. Fifteen minutes.
5. Growing and Marketing Peaches. Twenty minutes.
6. Perfect Corn Culture. Twenty minutes.
7. Field Management. (Illustrated.) Twenty minutes.
8. Old and New Methods. Fifteen minutes.
9. Can a Young Renter Hope to Own a Farm? Twenty minutes.
10. The Harrow. Twenty minutes.
11. Growing and Marketing Wool. Twenty minutes.
12. The Colt; Its Care and Management. Twenty minutes.
13. Milk Fever. Fifteen minutes.
14. The Sampson Fox. Twenty minutes. Night.
15. Children of the Farm. Thirty minutes. Night.
16. Shall We Farm? Forty minutes. Night.

R. Y. White, Chandlersville, Muskingum Co., O.

1. Plant Feeding. Twenty minutes.
2. How to Grow Wheat in Spite of Hessian Fly. Fifteen minutes.
3. The Chicken a Profitable Farm Animal. Fifteen minutes.
4. How to Select Our Live Stock. Twenty minutes.
5. Sheep on the Farm. Twenty minutes.
6. Farm Life. Thirty minutes.
7. Experiments with Fertilizer on Corn. Fifteen minutes.
8. Seed Wheat; Its Selection and Growth. Twenty minutes.
9. The Farmer's Orchard. Twenty minutes.

C. G. Williams, Gustavus, Trumbull Co., O.

1. Mistakes, Experiences and Observations. Twenty-five minutes.
2. Feeding the Dairy Cow. Thirty minutes.
3. Why I built a Silo. Twenty-five minutes.
4. What Crops Should the Farmer Sell? Thirty minutes.
5. My Experience with Potatoes. Twenty-five minutes.

6. The Round Year at Elmwood. Thirty-five minutes.
7. Commercial Fertilizers. Thirty minutes.
8. Some Helpful Books for the Farmer. Twenty-five minutes.
9. Fighting a Drouth. Twenty-five minutes.
10. The Hen. Twenty minutes.
11. What About Our Schools? Thirty-five minutes. Night.
12. What Are We Farming For? Thirty-five minutes. Night.

Lecturers from the Ohio State University, Columbus, Ohio.

The following officers and professors of the Ohio State University may be obtained, when other engagements permit, without pay other than their actual expenses upon invitation from the local authorities of Farmers' Institutes:

President W. O. Thompson.

1. Why We Educate.
2. Taxation.
3. The Educated Farmer.
4. The Importance of the Individual.
5. Some Seed Thoughts for Farmers' Sons.
6. Does the Farm Offer a Sufficient Opportunity for an Ambitious Young Man?

Thomas F. Hunt,

DEAN OF THE COLLEGE OF AGRICULTURE AND DOMESTIC SCIENCE AND PROFESSOR OF AGRICULTURE.

1. The Relation of Agriculture to the Progress of the Century.
2. What is an Agricultural Education? (Illustrated with lantern pictures if desired.)
3. The Outlook for the Live Stock Industry in Ohio.
4. Feeding Rations for 1901.
5. Method of Selecting a Good Milch Cow. (If desired and arranged, practical demonstrations will be made.)
6. Method of Selecting a Good Beef Animal. (If desired and arranged, practical demonstrations will be made.)
7. Method of Selecting a Good Horse. (If desired and arranged, practical demonstrations will be made.)
8. The Importance and Method of Control of Water in the Production of Farm Crops.

David S. White,

DEAN OF THE COLLEGE OF VETERINARY MEDICINE AND PROFESSOR OF VETERINARY MEDICINE.

1. Something About Microbes.
2. The Relationship of Bovine Tuberculosis to the Human Health.
3. Hog Cholera.
4. The Ounce of Prevention and the Pound of Cure.
5. The Farmer Boy and the Ohio State University.

John W. Decker,

ASSOCIATE PROFESSOR OF DAIRYING.

1. Square Blocks or Round Ball, Which? An educational talk for young people.
2. The Ohio State University. (A stereopticon lecture.)
3. A Stereopticon Lecture on Milk and Dairy Cows.
4. A Stereopticon Lecture on Swiss Cheese.
5. A Stereopticon Lecture on European Dairying.
6. The Constitution of Milk.
7. The Care of Milk.
8. Making Butter on the Farm.

(The stereoptican will show a picture eight feet square. This is satisfactory for small halls, holding three to four hundred people. Can be seen fifty or sixty feet.)

William R. Lazenby,

SECRETARY OF THE COLLEGE OF AGRICULTURE AND DOMESTIC SCIENCE AND PROFESSOR OF HORTICULTURE.

1. A Talk About Weeds.
2. Some Insect Enemies of the Orchard and Garden.
3. Crimson Clover and Other Clover Crops.
4. Theory and Science on the Farm.
5. Some Reasons for Growing Forest Trees.
6. How to Beautify the Home.
7. Nature Study for Boys and Girls.
8. How to Make Fruit Culture Pay.
9. Some Profitable Crops and How We Manage Them.
10. Horticulture as a Business for Young and Old.

Henry A. Weber,

PROFESSOR OF AGRICULTURAL CHEMISTRY.

1. Food Adulterations.
2. Barnyard Manure.
3. Commercial Fertilizers.
4. The Nitrogen Question.

W. A. Kellerman,

PROFESSOR OF BOTANY.

1. Cause and Prevention of Smuts and Rusts.
2. A Chapter in Vegetable Physiology.
3. Bacteria; What They Are and What They Do.
4. Vegetable Parasites of the Orchard.
5. Important Factors in Education.
6. Air and Soil in Relation to Health.
7. Modern Science in Modern Life.

Herbert Osborn,

PROFESSOR OF ZOOLOGY AND ENTOMOLOGY.

1. Insect Control.
2. Grass Insects.
3. Orchard Insects.
4. Insects Affecting Live Stock.
5. The Hessian Fly.

William D. Gibbs,

PROFESSOR OF AGRONOMY.

1. The Origin and Nature of Soils.
2. The Need of Controlling Soil Moisture on Ohio Farms.
3. Some Reasons for Crop Rotation.
4. Modern Methods in Corn Culture.
5. What Constitutes a Good Ear of Corn.
6. Some Points to Observe in Selecting Tillage Implements.
7. The Handling and Shipping of Grain in the United States.
8. Feeding the Dairy Cow.
9. Thirty Minutes at the Ohio State University. (Illustrated.) Night

J. Warren Smith,

DIRECTOR OHIO SECTION, WEATHER BUREAU, COLUMBUS, OHIO.

1. The Work of the Weather Bureau. Thirty-five minutes.
2. Weather Forecasts and Warnings; How Made, Distributed and Utilized. Twenty-five minutes.
3. Frost Warnings and the Protection of Crops from Frost. Twenty-five minutes.
4. The Location of Ohio in the Climatological Zone of the Northern Hemisphere. Twenty minutes.
5. Lightning and Electricity of the Air. Twenty-five minutes.
6. The Atmosphere. Twenty-five minutes.
7. The Farmer and the Weather Bureau. Forty minutes.
8. Putting the Emphasis Upon the Proper Things. Forty minutes. Night.

PAPERS READ
AT
FARMERS' INSTITUTES 1900-1901.

Forwarded to the Secretary of the Department of Agriculture for Publication in the Annual Institute Report.

CATTLE—TWENTY YEARS' EXPERIENCE IN RAISING, BUYING, FEEDING AND SELLING.

By JOHN H. CHESTER, Antwerp, Ohio.

[Read at the Farmers' Institute held at Antwerp, Paulding County, December 31, 1900, and January 1, 1901.]

If we would be successful in the cattle business we must learn the lesson of self-denial, and should always have in store an unlimited amount of patience. We should always be kind to, but firm with all domestic animals. If they get out of their enclosure as they sometimes will, we should get them back without injuring them, for usually the person having charge of the stock is to blame.

A stockman can not always have his regular meals; neither will he be successful if he is due in town every Saturday afternoon at 1 o'clock sharp. He must sometimes be out in inclement weather. Waterproof garments such as are used by sailors and fishermen on the lakes should be provided, and also storm covers for team and harness.

CATTLE RAISING.

The successful cattle raiser must provide an abundance of shade and pure water in the summer season and ample shelter in the winter season, and salt where the cattle may have free access to it at all times. Provision should also be made for plenty of exercise at all times, especially for the young stock. A small field or enclosure adjoining the feed yard is desirable for this purpose and should be well drained.

FENCES AND GATES.

Good substantial fences and gates are indispensable and should be kept in good repair. The common slide gate hung on rollers is the only practical farm gate for general use. These should be made of uniform width, so that they may be used anywhere on the farm, and the only safe fastening is a chain and padlock.

BUILDINGS.

These should be centrally located for convenience and economy in fencing, feeding and watering stock, havesting crops, hauling out manure, etc. The barn, in which some feed should be stored for inclement weather, should be located north of and adjoining the feed yard, which should be at least half covered and enclosed except on the south side; a wing should extend across the west end of the feed yard for a wind-break; this may be used for hay, grain, farm tools and implements, or may cover part of the feed yard. There should be no mangers or permanent fixtures. The uncovered part of the feed yard should be ballasted with brickbats, crushed stone or other suitable material about eighteen inches deep. Here the stock will enjoy the warm sunshine on many cold days, which is as free as the air and just as necessary for the growth of animals as plants, our "basement feeders" to the contrary notwithstanding. There should be a well-ventilated apartment in a convenient location, which may be darkened if desired and used as a hospital for sick or injured animals. The shed should be of sufficient height to admit of the accumulation of manure, and for this reason is preferable to a basement, and the manure will retain its fertility till the time and opportunity arrive for hauling it out without injuring the land by tramping.

WATER.

This should be in abundant supply and, in the absence of springs and fountains, probably the most feasible and cheapest way to obtain it is by windmills attached to never-failing wells; it should be pumped directly into stock tanks, which should be of sufficient capacity to furnish the stock on a still day. We have discarded storage tanks, self-regulating pumps, tank heaters, etc. On very windy days we hook the windmills so they are about half folded: on calm days we let them go and pump to their full capacity; of course the tanks will run over, but this keeps the water of even temperature the whole year round. On the coldest days it will be steaming; on the hotest days it will be cold and fresh, and the dead grasshoppers will not accumulate and pollute the water. The overflow may be conducted to the hog trough and then to a tile or other means of escape. This method brings us as near to the natural spring and the fountain as we may expect to get. A small opening just large enough for the cattle to drink is better than to allow them to get in with their feet and pollute the water, especially in the feed yard. Tanks for summer use should be located between two fields or pastures, and thereby save the cost and repair of another plant. Water is comparatively cheap, but more stock suffers for want of it than for food; too many stockmen and farmers act as though the water supply of the world was about to fail.

BUYING.

The cattle buyer must be governed by circumstances. We should buy nothing but healthy, thrifty animals, but we should remember that the best is not always the cheapest in the cattle line, because there are feeders who will not buy anything but the best, regardless of price, and we find another class who will buy nothing but "reds and roans." These men should not be imitated by the ordinary feeder, for as many common people have been financially ruined by trying to imitate the wealthy, so the ordinary feeder may be lured on to destruction by trying to imitate these fancy feeders. We should give place to no whims, fads or fancies, but use all the available horse sense at our command, for neither the "butchers" at home or abroad nor the "great packers" who distribute meat all over the world, and feed the great armies in the field, care anything for color. Our experience has taught us some dear lessons in twenty years. We now prefer to buy cattle from a more northern latitude, because they have a thicker hide, thicker blood, a thicker, longer coat of hair, a better appetite, and a more rugged constitution than cattle from farther south. A given amount of money invested in these common cattle will purchase many more in number of the same weight than if invested in fancy cattle, and therefore will lay a broader foundation for converting unsalable rough feed into beef and fertilizer, and when being finished for the market will admit of more hogs to follow them, and although it may be found necessary to feed a little longer to cover up some defects, it will generally be found profitable to do so. A successful cattle buyer must be a good judge of cattle, and should be of "human nature," and if lacking in either should employ some one who is proficient in both and strictly honest, for there are scoundrels at all the markets who will take advantage of the buyer at every opportunity.

Not long ago we were employed by a farmer friend to buy a load of cattle. We were looking leisurely about the stockyards at Chicago, getting our bearings and the other fellow's prices, when a scalper whispered to us, "If you will buy my load for your friend I will give you a five." There are many temptations ever present which must be brushed aside. We should not be in a hurry when buying cattle, and as a rule should buy when there are more "sellers" than "buyers." Stock well bought is half sold.

FEEDING.

We will commence with the calf at about one year old, say about March 1st. Clover hay is probably best, but they will do very well on corn fodder and a little grain; oats and bran are good, but split corn will do very well. Yearlings may be pastured and will make a fair growth on the coarser grasses. When these cattle come into the feed yard the next winter they may be fed any coarse feed raised on the farm. About March 1st they may be fed a little more grain. Shock corn is all right, if not too large; if so, it should be husked and split the same as for calves. Husked corn should always be split before feeding to cattle of any age. We find this method more desirable and cheaper than any other process. We get the best results by feeding rough feed morning and evening and grain at noon; the quantity of grain should be increased gradually until the cattle are turned out on grass, which should not be before May 1st in this latitude. Cattle which have not been dehorned should lose these ornaments not later than March 20th. When these two-year-olds are turned out on grass the heifers designed for cows should be sorted out. The best pasture is none too good for the cattle which are designed for beef. They should have full access to water, sunshine, shade and salt at will. Care should be taken not to overstock the pastures. About three acres per head will be necessary for cattle at this age. These cattle should be put on feed at any time between September 15th and November 10th, but always before the cold wintry blasts cut off some of the profit.

And now we come to the parting of the ways. Here is where so many inexperienced feeders hesitate and often get discouraged. There are so many different opinions as to the best methods of feeding, and so many of them promulgated by feeders who never fed, that it is no wonder we are at a loss to know which is best without experimenting, which is generally costly enough.

We only give here our own simple methods and some of our own past experience. We think we have one of the best machines for pulverizing the corn crop, and used it for two or three years; we found there was not enough grain in this large bulk to fatten cattle properly, but found it a good ration for stock cattle in the spring. This machine will do all the manufacturers claim for it, and the stock will eat up the whole thing, but who can afford to raise sixty-cent or seventy-cent wheat and get one crop in three years to provide straw for bedding when the cattle are eating up the best and cheapest bedding on earth?

We have fed chopped corn, split corn and fodder unhusked pulverized by this machine, to cattle that could have done all this work cheaper than any machine yet devised by man; so we are feeding shock corn exclusively at present, and one man will easily feed one hundred cattle, where the feed is not too far off, and when cattle are fed the hogs are fed, and all are bedded. We feed in cribs having no bottom, four and one-half feet wide, four feet and eight inches high by sixteen feet long; runners, or bed pieces, are three by five inches, sloped on under side at each end, similar to a sled runner, so they may be pulled either way. A two by six strip is bolted on each end, crosswise, to hold them firmly together, and by which the crib may be pulled from place to place. Two-inch holes are bored thirteen inches from center to center, all round; two by two stakes are inserted in these holes and wedged below and sawed off even with the bottom of the runner. This should be all sound oak. Top boards should be one and one-half inches thick by six inches wide, holes same distance apart, stakes inserted and wedged as below. Cribs should be boarded up about eighteen inches high to prevent hogs from getting in—for the hogs should be with the cattle constantly. Top boards and siding may be of any native timber. These cribs should be dumped every day, then pulled along and set up in another place—the hogs will do the rest. We find this method more practical than fixed mangers or cribs, as they are always on top and easily moved and nothing can be wasted.

When the cattle are put on feed they should be fed moderately at first, gradually increasing on cool days for thirty or thirty-five days, and after that all they will eat up clean, except in warm, foggy or wet weather. Regularity in feeding is essential, say from seven to nine oclock a. m. and from one to five p. m. We should not be in a hurry to get to town and feed at one or two o'clock p. m. on Saturday, and not before eleven or twelve o'clock on Sunday, or we may soon find a hole burned in our pocket, for nothing but dangerous illness or death should interfere with regular feeding. No noisy children or strangers should be allowed in the feed yard except a buyer or friend who knows enough to keep quiet, and then only at feeding time. If these suggestions are not closely observed we may soon find a hole in the other pocket.

And now as to the kind of cattle to feed. We have already touched upon this question under another head. Every farmer who feeds stock should have accurate scales in a convenient place near the feed yard under cover. Scales tell the hard. cold facts and are a great educator. We once purchased a bunch of fancy red steers from Iowa and one rough, spotted grade steer from Wisconsin which had been improperly kept. The silky bunch averaged eight hundred and ten pounds each and the rough steer weighed eight hundred and forty pounds on June 25. When these cattle were put on feed, October 1st, the fancy bunch averaged nine hundred and sixty pounds each, and the rough steer weighed nine hundred and twenty pounds. On January 28th following, the fancy bunch averaged one thousand one hundred and seventy pounds each in Buffalo and went to the butcher trade at three and a quarter cents per pound, while the other steer, which was now smooth, went across the water at the same price, viz.: three and a quarter cents per pound and weighed one thousand three hundred and ninety pounds, making a phenomenal gain of about four pounds per day, while the fancy steers gained but one and three-quarter pounds each per day, and cost three dollars and forty cents per hundred pounds, while the rough steer cost only two dollars and forty cents per hundred pounds. Which were the most profitable? This rough steer put in many hours feeding when the others were pinched by the winter cold. Last year we fed a load of Canada cattle and sold them in Buffalo in February for four dollars and ninety cents per hundred. We met a friend who had on the market a load of good grade steers, fed by good men who had been at it for many years. These weighed about two hundred pounds per head more than ours and sold for only twenty-five cents per hundred more. But common cattle should be well finished so they will sell for a better quality than when purchased. This enables us to realize the difference in price, which we can not do with the best cattle.

SELLING.

We should not fix in our mind the price we expect to get or we may be disappointed. If we can get the market price and honest weights, that is all we should expect. This we should have. Our stock should not be offered for sale when the markets are glutted. We have observed that with few exceptions February, March, July and August are the best months to sell both cattle and hogs. We have not always found the stockman's pathway strewn with roses. It is sometimes a rugged road to travel, but we have the consolation of knowing that we have a fertile soil to transmit to our posterity, and that meat eaters rule the world and that meat producers hold the key to the universe.

Stockmen are interested in the commerce of the country. They want the wheels of industry kept moving. As a rule they are broad-minded, brave, loyal, patriotic citizens; cattle raisers, cattle feeders, cattle dealers, cowboys, and all; they are first in war, first in peace, have carried the flag the farthest, planted it the highest, and will defend it forever and forever.

SHEEP FROM EXPERIENCE.

By S. M. Newlun, Lattas, Ohio.

[Read at the Farmers' Institute held at Frankfort, Ross County, February 22 and 23, 1901.]

In these few remarks relative to sheep, and the results accruing from handling them, I desire to make the subject general and personal—general as regards the subject in its various branches, and personal from my own experience, both practical and remunerative.

Sheep have been associated with my earliest memories, as my father handled sheep, not for fun, sentiment or a hobby, but as a successful and lucrative investment. Being desirous when a boy to learn the sheep business thoroughly and also at the best ranch attainable, I went to see Dr. Wolf, the largest sheep man in the vicinity, with whom I was fortunate in being able to engage, and this placed me in a position of getting educated on the "woollies" from the best source procurable. So, having no objection to urge against my vocation or its results, I spent many seasons with Dr. Wolf, and I believe my efficiency pleased him, as he suggested my judging at the State Fair for him on one occasion, and also sent me to Vermont to buy some of the high-priced stock that he purchased from that state, on another. The buck lambs bred from this Vermont stock he usually sold at twenty-five dollars or thirty dollars each, and an occasional one of extra merits for a much higher price.

When I married and moved to this county my first venture on my own account was with sheep, and no cattle or hogs, with the result that after one year's experience I had my money back and the sheep as well, which was quite good enough for me. I have had considerable acquaintance with other stockmen, and they can not show the same result from cattle or hogs.

It is my intention to try to interest my hearers for a few minutes with a sheep talk. My experience is that a ewe pays for itself every year, and there are others in the room, who, from practical experience, can demonstrate what I say; but sheep, like anything else, must have attention, and particularly food and especially during the winter. They should be fed grain twice daily, with all the fodder, hay or picking they can get. I may here state that it is necessary when there is a heavy snowfall on the ground that it must be swept away, if the feeding is done on the ground; never feed on wet ground, troughs being preferable in wet weather. Shock corn is the best feed for a bunch of stock sheep. Of course it is essential to keep them clean and also free from burrs. Diseases of a contagious nature such as foot rot and scab must be carefully guarded against, and this can only be prevented by keeping one's eyes open, and upon the first cases being detected immediately resorting to dipping. Any of the leading dips which are advertised in reliable stock papers will answer. Anyone handling sheep who is interested in his work and experienced will be at all times watchful for any signs of disease, and will know what precautions to take so as to prevent the spread of any disease of a contagious nature, and very quickly, as a rule, get it under control.

The cost for labor with sheep is very small, and if the flock is small it can be done personally, but if a large flock it is advantageous to have good, intelligent and experienced shepherds, who can always be paid a higher wage than the cities can offer, as an inducement.

Sheep adapt themselves to all conditions of land, either hilly, mountainous, marshy or meadow. They will enrich a poor farm, and make a bare hillside profitable. The sources of revenue from sheep are many. First, there is the meat from either spring lambs, which commands high prices (fat lambs from eight to ten months old), ripe wethers, from two to four years old or, lastly, good ewes, after they have brought several lots of lambs. As lamb and mutton are rapidly gaining ground as an article of diet in this country, consequently the demand for these commodities is always good, and a casual glance at the leading stock market sales will easily convince sketptics that the consumption of these meats assumes a very high standard. Second, the wool is another substantial contribution to a farmer's income, even though the prices for this commodity have been exceedingly low for some time, still as long as people require clothing, the demand for wool will continue and woollen cloths will be used. Third, and fully as important, is the improvement to the land which sheep never fail to effect with their rich fertilizing qualities and their golden feet. One thing I want to impress is that good stock is important, and it costs no more to manage well-bred stock, neither do they eat any more than what we term scrubs. The first cost for good stock may be a little more, but then the return more than compensates for the extra outlay, and really there is no excuse for not having good stock, as there is always some one in the neighborhood interested in the industry, and who has his stock of the kind adapted to the district, so as to obtain the best results from their development and general improvement.

Regarding the different breeds of sheep, there are so many, that of course, some people have their own ideas and choice as to the best. My experience is that it matters little what breed you have—it is simply a matter of choice. I might choose the Delaine, you the Shropshire, and your neighbor the Southdown, and with the same amount of judgment expended with each one, our profits would not vary materially.

Some people have no taste for handling sheep at all, and to such, my advice is to leave them alone, as you are sure to make a failure of your investment in them if you get them merely because your neighbors have them and seem to do well at the business.

A very important thing to bear in mind is to never get overstocked with sheep. If you do it will be one of the worst experiences you ever had from a financial standpoint.

It has been said by some friends of mine, when I would say to them, "You ought to have a few sheep," "Oh, my land is too good for sheep." To these I do not hesitate to say there is no farm too good for sheep. While they will restore and improve wornout land they will thrive on good land without doing it any injury.

In conclusion my advice is: If you are not interested in sheep and expect to materialize from them without using judgment and care in their management, let them alone, but if you feel disposed to put half the energy, money and thought into the raising of sheep that you would into cattle or hogs, you will find more money to your account, and feel better satisfied in the end.

RAMBOUILLET SHEEP.

By Dwight Lincoln, Milford Center, Ohio.

[Read at the Farmers' Institute held at Marysville, Union County, January 30 and 31, 1901.]

I suppose there are but few persons, if any, within reach of the sound of my voice that are not more or less familiar with this great breed of sheep, and for good reasons, too, because there is no breed that has come into so much prominence of late as these, and no other that more justly deserves popular favor.

The questions are often asked: "Where did they come from?" and "What are they and what are their good qualities?" I take pleasure in answering as briefly as possible.

They originated from a small flock of Spanish Merino sheep, imported from Spain to France in 1786 and located on the royal experimental farm at Rambouillet, near Paris, from which place they eventually took their name. The foundation flock consisted of selections of nothing but the *best individuals* from the *best flocks* of Spain at that time. This first importation was strengthened by a second and larger one, made in 1801. By judicious selection and mating, breeding always the largest and best of the increase, and keeping them strictly pure (they have never, even to the present day, gone outside the government fold for new blood), the fame of the Rambouillet breed became so great as to surpass even that of the parent stock. From the government farm at Rambouillet they gradually spread over France, and by the middle of the nineteenth century exportations were made to Germany and America.

The sheep breeders of Northern Germany recognized the superior qualities of the Rambouillets and were not slow in availing themselves of opportunities to purchase foundation flocks from the government flock of France and from the Gilberts of France. These have been carefully bred, and today a score of enthusiastic German breeders are scattered over the provinces of Mecklenburg and Pomerania.

In the United States, too, the new breed soon found many friends, among the earliest importations being that of Mr. A. P. Howard; since then many others have been made, until today American bred, especially Ohio bred Rambouillets, rank with the best in the world, and as the natural advantages of our country are much greater than those of the old world, the time does not appear to me to be far distant when we shall be able to surpass even the flocks of Europe, and to export breeding rams instead of importing them.

In regard to the second question, "What are Rambouillets and what are their good qualities?" I will say, they *are the greatest breed of sheep on earth*, but as this may sound like a mere assertion I will enumerate just a few of their many excellencies:

First of all is their wonderful capability to adapt themselves to all kinds of circumstances, climate, feed and different degrees of care and attention; all these are apparent to those who have ever traveled over the range district of our great West where, today, Rambouillet blood predominates.

The most prominent quality from the Eastern farmers' point of view is the undisputable fact that they come the nearest to an ideal *general purpose* sheep of any of the breeds of the present day; because they combine the merits of the Merinos with those of the English mutton breeds.

Their wool is of long staple and very fine, furnishing material for the popular fabrics, so well known under the name of French Merinos or Delaines, while their great size and smooth outlines compare favorably with the best English mutton breeds and the quality of their flesh is such that Rambouillet mutton is second to none.

While they can endure more hardship than any other breed they will also respond as readily to good care and feed as any known breed, being easy feeders and early maturing.

Rambouillet rams *invariably* stamp their good qualities on their offspring, even when used for crossing purposes on any of the other breeds; for this reason they are much preferred to any others all over the West, where ranchmen are striving for a large sheep with good mutton qualities, and at the same time a fleece of sufficient fineness and length of staple to make it the most sought after of any in the market.

WINTER LAMBS.

By Charles H. Graves, Antwerp, Ohio.

[Read at the Farmers' Institute held at Antwerp, Paulding County, December 31, 1900, and January 1, 1901.]

The first requisite for raising winter lambs, is a good flock of ewes in which the blood of one of the mutton breeds predominates. Personally, I prefer a high grade Shropshire-Merino ewe in which there is a greater percentage of Shropshire than Merino blood. My experience has been mostly with ewes of this sort. I think the Southdown would do as well, and, possibly might excel the Shropshires, inasmuch as they are more distinctly a mutton breed. However, I think the matter of breeds can be left to one's taste largely, as there are several good breeds of mutton sheep.

The second requisite is a good ram. He should be of the same breed as the ewes, only pure-bred. That is to say, if the ewes are grade Shropshire-Merinos or Southdown-Merinos, the ram must be a pure-bred Shropshire or a pure-bred Southdown, as a greater degree of uniformity would be secured. I believe in breeding in one line, and not in scattering one's energies by crossing one breed upon another. I like to see uniformity in a flock, and the only way this can be secured is by breeding in one line, together with careful selection with reference to an ideal or certain type. The ram should have a distinct mutton form. He should be broad, deep and low down with rather fine bone. His back should be straight and his ribs well sprung. Add to these erect carriage, vigor and a marked degree of masculinity, and you have a ram which I should regard as good enough to use in a flock of ewes for the production of winter lambs. "Like produces like," and hence I should expect lambs gotten by such a ram as I have described, to be an improvement over the ewe stock. It has always been my aim to use a ram whose get might reasonably be expected to excel what I already had. Thus have I secured an almost uniform improvement in my flock.

The third requisite for raising winter lambs, as it appears to me, is a suitable sheep barn. The time was when it was thought that a cellar or a building heated artificially was necessary, but such is not considered absolutely necessary now. A building tight enough to exclude the wind answers very well. Of course in extremely cold weather a cellar would be a convenience which I should appreciate very much, but in ordinary winter weather I should not care for one. There never was but one time, since I have been raising winter lambs, when I felt the need of warmer quarters than I had, and that was two years ago this winter. I have good reason for remembering the time, nor do I think I shall soon forget it. Our ewes had begun lambing in earnest when a cold wave struck us. It snowed and blew with increasing fury for a whole week, until the climax was finally reached by the thermometer registering 24 degrees below zero. That was just a little too cold for raising winter lambs in an ordinary sheep barn with any degree of pleasure to the shepherd; nor do I imagine the little lambs enjoyed coming into the world at so cold a time. In the coldest night, when the thermometer registered 24 degrees below zero, and the wind was blowing at the rate of, possibly, 30 miles per hour, I got four pairs of twin lambs, and saved them all. I was with the ewes constantly, as is my custom when the weather is very cold. and if I remember rightly, had not seen a bed nor had my clothes off for a whole week, at the end of which time I was nearly exhausted. So you see, I was faithful to my flock; not to have been faithful at such a time had been little less than murder upon my part, as every little lamb must have perished in a very few minutes had I not rendered timely assistance. As soon as the lambs were yeaned, they were taken through about the same course of training that a race horse passes after he has done a mile several seconds better than any previous record. They were then wrapped in blankets and put to the udder. After which they were put into a sack and taken to the house, and put into the parlor where I had a good fire. I had one corner of the parlor partitioned off in which to entertain the lambs. Now, I suppose some of you farmer ladies do not approve of putting lambs in the parlor. I do not myself, under ordinary circumstances; I would about as soon have taken them into the sitting-room—would not have objected taking them into the kitchen for that matter. But the fact is, the parlor was the only room finished in our house at that time. My family was living in town, and I was keeping bachelor's hall, having a good time, eating and sleeping in the parlor—what little time I was not in the barn with the ewes. As soon as the lambs were dry they were put into the sack again and returned to their mothers, put into a box stall three by four feet, and a canvas put over them. As soon as they could help themselves at the udder I regarded them as safe.

Now, brother farmers, do not all rush into raising winter lambs. If you do, some of you will get into just such trouble as I have been trying to tell you about. And then, you may not all be permitted to take the lambs into the parlor, as every good-natured housewife would not allow this.

My sheep barn is sided with matched lumber, and when closed, with a hundred or more sheep in it, is not as cold as one would naturally suppose. The animal heat from the sheep and their breath temper the atmosphere of the building to some extent. In ordinary winter weather I experience no inconvenience of which to speak. I manage to be with the ewes as much as posssible even to the extent of getting up once or twice in the night to see that all is well. To crawl out of a warm bed at midnight, on a cold wintry night, to me, seems to be the severest test to which a shepherd is put, in raising winter lambs.

The fourth requisite is, proper feeding of both ewes and lambs. The feed should be nitrogenous—rich in protein or blood and muscle forming elements, rather than carbonaceous or heat and fat forming. The ration should be narrow, according to Mr. Todd if I remember rightly, about 1 to 5.5 or 6. That is, the ration should consist of 1 part blood and muscle forming elements to 5.5 or 6 of heat or fat forming elements. Now, let us see: Corn fodder is 1 to 20; timothy hay 1 to 13, and straw 1 to 32. These are all too wide—too much heat and fat forming elements in proportion to the blood and muscle forming elements. Early cut clover, well cured, having a nutritive ratio of about 1 to 5, just fills the bill, so we will look no further for roughage.

The little lambs begin nibbling the leaves at three or four days old. For a grain ration, I know of nothing better for the average flock-master, than corn, oats and coarse bran—fed in equal parts by weight. The nutritive ratios of these are 1 to 10, 1 to 7 and 1 to 4 respectively. Hence, we have a grain ration with an average nutritive ratio of 1 to 7. Now, assuming that one pound of grain to two pounds of hay is fed, which is about what I feed, we have a complete ration with a nutritive ratio of 1 to 5.4. This ration is hard to improve upon from the standpoint of the average flock-master. Clover hay is cheap, and can be raised on every farm. The same is true of the corn and oats. The bran, only, has to be bought. Do the lambs thrive and grow upon this ration? Yes; and get fat too. Take for instance, a mature ewe—one, that is in her prime, a fair milker. Let us assume that she has an average lamb, one weighing, say, ten pounds. At the end of the first week, under successful management, this lamb will weigh thirteen or fourteen pounds. At the end of the second week it will weigh eighteen pounds, and thereafter covering a period of four to six weeks, it will make a daily gain of one pound. At eight weeks it ought to weigh fifty to sixty pounds, and should be hog-dressed and sent to market. Last February such lambs as the one I have described, brought me eight dollars each in New York City.

Is there more profit raising winter lambs than spring or summer lambs? If there were not I should prefer raising the latter for various reasons. But let us see as to the relative profit. It costs me about three dollars per year to keep a ewe employed at raising winter lambs. This, I think, will cover what little the lambs eat also. Say the lambs nets seven dollars each in New York. The ewe's fleece will bring about one dollar and fifty cents, making eight dollars and fifty cents gross receipts from the ewe for one year. Say the ewe is worth five dollars, we will allow 8 percent or forty cents interest on investment, and 10 percent or fifty cents depreciation.. Add to these three dollars cost of keeping one year and we have three dollars and ninety cents total expense keeping the ewe one year, leaving a net profit of four dollars and sixty cents, which is 92 percent of the investment. Not a bad profit, is it? Now, let us take a ewe raising a summer lamb. If she is kept at all decently it will cost two dollars to keep her a year. She will raise a lamb that will bring about three dollars in the fall. Hence we have fleece one dollar and fifty cents and lamb three dollars, making four dollars and fifty cents. Deduct from this for one year's keep two dollars, depreciation fifty cents, and interest on investment forty cents, which makes two dollars and ninety cents, and we have a net profit of one dollar and sixty cents, which represents 32 percent on our investment of five dollars. Hence we have a net profit of 92 percent in favor of the ewe employed at raising the winter lamb as against a profit of 32 percent for the ewe employed at raising the summer lamb. This would seem to demonstrate that where one dollar could be made raising summer lambs three dollars could be made raising winter lambs. I think the demonstration a practical one. I sold last year from a little ewe that cost me three dollars two fine lambs which brought me fifteen dollars and fifty cents in New York City. In this one instance my net profit was more than 400 percent on my investment. Nor was I satisfied with this. After the last lamb had been sent to market I tied the ewe up, thinking I would make her foster-mother to some other twin lamb.

In this way we often push a lamb into market two or three weeks sooner than we could have done where twins are carried by one ewe. Not every ewe can do justice to two lambs. We generally manage to have the ewes whose own lambs have been sold help out some of the poorest twin lambs. They can usually be made to own them in about a week by shutting ewe and lamb together into close quarters and tieing the ewes. As I said before, I tied the little ewe by putting a rope around her neck. I should have put a halter on her, but I was in a hurry and the rope being closer at hand I used it. I was trying to care for one hundred and fifty ewes, and often had only time to give one beat to a half note even though it was entitled to two. The result was the ewe hung herself. I regretted this very much. Considering my small investment in her of only three dollars she bid fair to be the most profitable ewe in my whole flock. The ending reminded me of the fable about the old woman and the goose which runs something like this: Once upon a time an old woman had a goose which laid for her a golden egg daily; hence, suspecting her to have a large amount of gold concealed within her, she killed the goose, but found nothing except what is found in an ordinary goose. Thus, desiring greater riches she lost even what she had.

The Moral—"Be satisfied with well doing." It applies to me nearly as forcibly as to the old woman.

EDUCATING FARM HORSES.

By Fred A. Graham, Maumee, O.

[Read at the Farmers' Institute held at Waterville, Lucas County, February 25 and 26, 1901.]

The first requisite to successful horse training is to have the horse. The next is that the trainer have good horse sense. Control yourself, be patient yet firm in your treatment of him. Give short lessons and see that he learns them well. Teach him one thing at a time. Speak plainly in a moderate tone of voice, always using the same word in expressing the same command. Commence his education when but a few days old and continue it until he will respond to every reasonable demand made of him. Begin when about one week old by putting on a light, well fitting headstall or halter. Of course you have patted him on the back, head and neck before this, so that he is not afraid of you. Take a one-half or three-fourths inch rope about six feet long, fasten one end in ring in halter, passing the other end through hole in manger, keeping hold of same. When he finds he is fast he will likely pull on the rope, but you can easily hold him with the advantage you have; he may throw himself in his struggles, and if so, loosen up on rope and help him to his feet, at the same time drawing up slack in rope. After one or two attempts and falls he will probably conclude that "discretion is the better part of valor," that you are master of the situation and he is at your service, at which time it will be safe to tie and leave him for an hour or so. It is very desirable to have him well halter-broke while young as he is much better off in the stable away from heat and flies while the dam is at work, and he will give very little trouble when weaning time comes, especially if he has been taught to eat a small amount of oats and bran after he is a couple of months old. We endeavor to give our colts the best of care, the first winter grooming them often and also handling their feet and legs; they seldom forget it, and when they become of proper age to work there is no trouble to groom or shoe them.

We will leave the youngsters now, taking it for granted that they have the best of feed and care until they become of proper age to begin their life work in harness, which will be at the age of two and one-half or three years, owing somewhat to their size and development. We commence their training for work in harness by giving them a few lessons, sometimes the second winter after birth while they are being stabled, by occasionally putting on them a light single harness, only using the back pad and breeching, not drawing up girths very tightly, and letting them stand in their stalls with this on for an hour or so at a time.

We do not, however, try to give them many lessons along these lines until the third winter, when we commence in earnest and endeavor to keep continually at it, trying to give them a lesson or two every day, so far as time and weather will permit. We begin by putting on the back part of light harness as before mentioned for a few hours a day for a day or so, when we put on bridle with large straight bit and check up very lightly at first, turning into a roomy box stall for a few hours at a time or leading about yard if time will permit, often stopping in front of them with the command, Whoa! spoken distinctly, and at the same time raising the hand in front of them if they do not seem inclined to stop readily. We consider it very essential they should learn this command thoroughly before we use the lines on them. After a few lessons of this kind, when they become somewhat accustomed to the harness, we take a pair of single lines and if they are not long enough to enable us to be out of reach of their heeels buckle a tie strap in the end of each so as to be at a safe distance in case they should endeavor to kick at the rules or us. Buckle these lines in the rings of bridle bit, leaving them out of turret rings. In case he should scare or try to run or turn about quickly, we can drop one line bringing our strength to bear on the single line and having a direct pull from his head. However, we do not aim to drop a line unless we find he is getting beyond our control with both of them.

As our first lesson has been to teach him to be led and stop at our command, our second lesson (if he has learned the first one well) will be somewhat confusing to him. He has learned to follow our lead; now we wish to follow him, or, in other words, to go behind and control him partly with the lines. If your pupil is intelligent you will find that he will turn and face you as often as you endeavor to get behind him. The better way is to have some one lead him for a short distance, finally letting go and working away from him. You can now check him from turning around by a firm pull on the line in the opposite direction from which he is trying to turn, and at the same time giving him the command to go, and perhaps a light tap with the whip to attract attention.

After a few lessons of this kind and he has learned to be guided by the lines and will mind your command to stop and start, you are ready to hitch him by the side of another horse.

This horse should be the steadiest and best mannered one you have, he should be prompt to respond to a command, not afraid of anything, and a fast walker, as this is the most desirable gait for a farm horse, and we want the youngster to learn it. Lead him around the yard a few times by the side of the older horse and on the side you wish to drive him before hitching them together. I prefer to hitch the young horse at first on the off or right hand side, for two reasons at least; first, if you have commenced his training in the winter almost his first work will be on the road to sleigh or wagon, where he will see many new objects which he will be compelled to pass; being on the off side he will be farther from them in passing and will not endeavor to turn around and jump over his mate to get away from them. His first work on the farm will perhaps be at the plow, and he will follow the furrow much better, with less side stepping, than he will upon the land side; however, I do not think his education complete until he will work equally well on either side we may wish to place him. After hitching beside the older horse I endeavor to have some one lead the colt a short distance by means of a single or side line attached to the outside ring of bridle bit, gradually falling back to one side and then behind. A few lessons of this kind and we are ready to hitch to sleigh or wagon, still having the second party with the side line; in case of an emergency he can jump out and have a direct purchase on the colt's bridle.

After driving him a few times, if all has gone well, we take off this side line and drive him a few miles each day, making as many stops and starts and turns as possible, and as we are somewhat of an "old-timer" we say, "Gee" and "Haw" when making these turns, and think it quite an accomplishment in our farm horses if they will respond readily to these commands. Our next lesson will be to teach him to back, and I wish to say right here that I do not consider a pair of horses well educated for team or farm work if when properly harnessed, they will not back almost any load they can draw. My experience leads me to believe that at least one-half of the farm teams throughout the country are not what they should be in this respect; and perhaps less than one-half the farmers pay enough attention to the proper adjustment of their harness so as to give the team a fair chance to back a load if they have the will so to do.

Let me present to you a picture which I see in imagination, and have often seen in reality, of a great big six foot farmer, weighing perhaps two hundred pounds, on top of a load of only a ton we will say, which, by the way, one good horse should back, if properly harnessed, pulling away with all his strength on those poor horses' mouths, while the pole and neck yoke straps were a foot too long and perhaps without breechings of any kind; the end of pole in the air as high as the horses' heads; the collars half way up their necks in such a position that what little force they could bring to bear upon the load was more of a downward than a backward force. Don't try to teach young horses to back in this way. First, see that your harness is properly adjusted, with breechings as near in line with lower part of collar as possible, with pole and back straps as short as possible, without chafing the horse when in motion.

Now we will suppose you are going to give the young horse his first lesson in backing. Drive your wagon onto a slight incline, if possible, and stop; then say Back! plainly, and if your older horse is what he should be he will respond promptly to this command by placing his feet squarely under his body, and at the same time, stepping backward, when a sharp short pull on the line will cause the young horse to do the same; drive up a few times and repeat the lesson. Never let the young horse know but that he can back or draw anything you ask him to, and never ask him, at least the second time, to do anything you have any doubt about his being able to perform. I think I have mentioned some of the most essential points in the education of the farm horse, and still there are many other things that it is desirable he should learn.

I will say in conclusion, let his education be as complete as possible, see that he is well mannered and can be relied upon at all times and in all places; it will pay you well in the satisfaction there will be in working with him, if you retain him as one of the farm team, or in dollars, if you place him on the market. And after he has performed his tasks for you faithfully and well and has helped you to lift that mortgage, and is becoming old and rheumatic, do not trade him off or sell him for a few dollars that he may be kicked and cuffed and starved in his declining years, but retire him with a pension in the form of a good box stall and the best the farm affords for rations.

If you feel you can not afford this, give him something that will end his troubles as quickly as possible and then give him a decent burial. And last, but by no means least, keep the best mannered and most trustworthy horse for your wife to drive. By this I do not mean the old, decrepit one that can hardly walk, but a reasonably young one, that has learned his lessons well and can be relied upon, and the more style and action he has in connection with these other desirable qualities the better she will like both the horse and his master.

POULTRY RAISING.

By Mrs. S. A. Rogers, Northwood, O.

[Read at the Farmers' Institute held at Degraff, Logan County, February 18 and 19, 1901.]

This subject is of interest to a large number of people and especially to the farmer and his wife. Poultry raising is becoming more popular every year. The general demand for poultry and eggs by nearly all classes of people furnishes good markets in nearly every city and town in the United States and at prices which are usually good, if judgment is exercised in the management of the business. Is profit the main end of poultry raising? Certainly it is the purpose for which the farmer's wife devotes so much of her time and labor in the spring of the year. Then we should strive by all means in our power to make it a success. We may have fine spun theories in our minds, but to be successful poultry raisers we must also have experience, hence my remarks shall be based mostly on my own experience. We need to hear of the practical experience of one another, and not so much theory.

The month of February should find our flocks in excellent condition, with the surplus roosters and superannuated hens, and in fact every fowl that we do not want for eggs or breeding, out of the way.

The Epitomist says: "Let us clear the deck, call closely and make progress this year. The new century is here; the country is prosperous. America is greater today in the sight of the other nations of the earth than ever before. Let us be proud of our birthright, and as individuals do everything we can to make all that is American the best the world produces." To insure success in poultry raising, we should follow some general rules which have been tested by the experience of others. These general principles are found in the poultry journals and are no doubt familiar to every up-to-date farmer and his wife. We will mention a few of the important things to be considered:

1. The location of the buildings and yards. As it is necessary to visit poultry houses several times each day in the year, convenience is of more importance than in case of almost any other farm building. Convenience of access and freedom from vermin are two desirable points to be secured, and they depend largely upon the location.

2. The construction of houses. In general it may be said that the houses should provide warm, dry, well-lighted and well-ventilated quarters for the fowls. It is essential to have the different pens or divisions so arranged that each one will receive as much sunlight as possible, and to secure this the writer prefers a building one story high and not less than ten feet wide, extending from east to west in order that as much sunlight as possible may be admitted through the windows on the south side. In all poultry houses in cold latitudes the windows should be placed in such a position that they will give the most sunshine on the floor during the severe winter months.

3. The nest boxes should be of such a nature that they can be readily cleaned and thoroughly disinfected. They should be so arranged that they can be taken out of doors, and they should be placed in the dark, or where there is only just sufficient light for the fowl to distinguish between the nest and nest egg. There should be plenty of room on two sides of each nest; some hens will drive off other hens, no matter how many vacant nests are near them, and when a nest is so arranged that it can be approached only from one side, when one hen is driving another from the nest there is likely to be more or less of a scuffle, the result of which is often a broken egg; this sometimes leads to egg eating. To our knowledge the habit of egg eating is not found where the nests are arranged in the dark, and are open on two or three sides.

4. Drinking fountains are an important problem for the poultry raiser to solve. One of the best drinking fountains is made of a large milk pan placed on a shallow box raised four inches from the floor. The water is kept in this pan and over the pan is placed a board cover supported on pieces of lath about eight inches long nailed to the cover so that they are about two inches apart, the lower ends resting on the box which forms the support of the pan. In order to drink it will be necessary for the fowls to insert their heads between these strips of lath; the cover over the pan, and the strips of lath at the sides prevent them from fouling the water. When drinking pans of this kind are used it is very easy to cleanse them with hot water whenever it is needed. Whatever fountain is used, it must be easily cleaned, and free of access to the fowls at all times.

5. The dust box is a very necessary article. Probably there is no better way in which the poultry raiser can prevent insects on the fowls than by providing dust boxes for them.

Do hens on the farm pay? They will pay well if we will give them the care and attention they require. To succeed we must be interested in them and take pride in seeing them thrive. Enough hens should be kept on the farm to supply the needs of the household, and admit of sufficient sales to cover all expenses and leave a margin of profit. We aim to introduce new stock every year. According to their use they can be divided into three classes: For egg producing, Leghorns and Spanish; for table use, Brahmas and Cochins; for general purposes, Plymouth Rocks and Langshans. Now for profit we find we can secure better returns by selecting according to the use we wish to make of them. We have two objects in view—to raise for the early market and to secure the greatest number of eggs; consequently we have three separate houses constructed on the shed-roof style, this being the warmest, cheapest and best. One of them is finished with drop siding on the side next the road, it is painted, lathed and plastered. It is built on the principle that the size of the house must depend on the number of fowls to be kept. Also to secure warmth, dryness and ample space. It is sheltered on two sides by the barn and granary, has a stone wall foundation to keep out the vermin, especially the minks, that are very troublesome. Two of the rooms are ten feet square and have cement floors which we aim to keep sprinkled with sand. These two rooms contain the perches of frame work which are suspended by wire from the ceiling four feet from the floor, and can be easily turned up to brush off the floors. There is a window above each door in the south side. The next two rooms are each five feet by ten feet; one is a hatching room and the other is the laying room. There is a row of nests against the partition with a board laid in front of them to keep the nests in the dark. Both of these rooms have gravelled floors. The following method suffices to keep the house clean: it is whitewashed with lime and carbolic acid, fumigated with sulphur and the nests dusted with insect powder, after brushing them over with kerosene.

Litter is kept scattered on the gravel floor in which they hunt their noonday meal. In this building we keep about fifty Plymouth Rocks and raise a good surplus for the early market, which bring from ten cents to fifteen cents per pound. While some others make the mistake of keeping their fowls till the holidays and receive only four and one-half cents per pound, we aim to get them hatched early and hurry them along with an abundant supply of clean, plain, cheap food, and dispose of them the moment they reach the age and size that bring the highest price. To get them fat for market we put them in a dry warm place and feed regularly all they will eat up clean. They will gain considerable in one week.

In another house we keep fifty Leghorns and find that April-hatched pullets of that breed will commence to lay about October first and continue to lay until the next April without wanting to sit, thus giving a nice profit in eggs when they are highest priced. We are now reaping the benefits to be derived from a warm house and good food in a generous supply of fresh eggs, and this, too, without resorting to any egg stimulant except oil meal in their warm mash, which consists of one gallon of boiled potatoes to one quart of bran and one pint of cracked corn, mixed with one quart of oats.

Cut green bone is an excellent egg food. Besides the warm mash we feed wheat, oats and some corn. We find oats one of the best grains for eggs that we can feed, and prefer them to any other grain when we want more eggs. We always aim to warm the water the hens drink in winter. Sometimes we feed the warm mash in the evening instead of in the morning as is the usual custom. If fed in the morning the hens want to sit around for several hours after eating it and enjoy this warm meal. But we exchange this by scattering grain in the scratching sheds among the litter of straw, after the flock has gone to roost. Then in the morning every one has to work for breakfast, and this constant digging and scratching for grains of wheat or oats, is just the stimulant needed at the right time; it promotes health, and health with good food brings eggs. At noon more grain is scattered in the sheds, so that this exercise is kept up all day long. Then after a hard day's work turning the straw over in the scratching shed we think a warm supper is just the thing to finish up the day's work. During the month of January, on the coldest day we had, we gathered eighteen eggs in this house and during that month we sold nine dollars' worth of eggs.

The new house we built last fall is built as a lean-to on the east side of the barn. In this we keep about twenty Langshans, and find they are very profitable for eggs also. Here is a picture of the way they are fed: Two boards are nailed together with an upright in the centre to keep the hens from getting their feet into the feed, from this they eat their warm mash. The scratching shed is a building with two doors and a window above each one. In one corner of it is a large box containing ashes and road dust and there is also a box containing oyster shells. These boxes are not more than one foot high.

As soon as the hens will sit in the spring they are placed in small boxes on the floor of the hatching room, with a cover over each one. They are taken off each morning to feed, drink and dust themselves and soon learn to go on their own nest. We aim to have fifty chicks hatched at one time. As soon as the chicks are twenty-four hours old they are taken from the hens, put in small boxes and kept warm for twelve hours longer when they are each one fed in its box with bread crumbs, water and dry sand. When they are two weeks old they are put into a warm room of the hen house with a door opening into a park surrounded with wire netting. After they have become accustomed to the place they are given their liberty, and they soon learn to run to shelter when a shower of rain comes on. At night they are put in a home-made brooder and placed in their house. In this way we can raise more chickens and do it easier than to raise them with the hens, and we have no trouble on account of the hens quarreling over each other's chickens.

We have them near the orchard and they go out through the day among the trees and forage, and we have lost very few with hawks. Thus we have no further use for the mother hen in taking care of the chickens. She is put into a house called the prison where she is fed green food, cut bone, and oats with a little corn, and she will in a short time resume her business of filling the egg basket.

Here is another plan: Set several hens at the same time and give about twenty chickens to one hen. With a warm little house she can brood twenty easily.

We have learned by experience to care for our flocks in such a way as to get fair returns and our accounts prove to us that hens on a farm do pay.

POULTRY RAISING ON THE FARM.

By F. W. Calvin, Washingtonville, O.

[Read at the Farmers' Institute held at Canfield, Mahoning County, Dec. 5 and 6, 1900.]

The poultry department of the farm is by many regarded as one of the most insignificant parts of the farming business. However, those who have given the subject some attention known that this is not the truth, as the poultry industry of the United States now amounts to more than three hundred million dollars annually, and is therefore one of the most important of all farm industries. It is also well known that the poultry industry supports more publications and holds more exhibitions devoted to itself than any other branch of farm operations. How then shall we proceed to get our share of the vast amount of money which is distributed among us each year for eggs and poultry? Before going any further let me say that I have had no experience with any kind of poultry except chickens, so shall confine my remarks to them only.

In regard to the artificial method of raising chicks as compared with the natural method, I wish to say that I consider the latter the best for most farmers, as but few will give the time and attention necessary to make a success with incubators and brooders. I have used both methods for the past few years and know that it requires a great deal of care and very close attention to raise chicks in brooders successfully. I shall therefore speak only of the natural method and shall try to tell you how to hatch and raise the chicks as well as to care for them after they have come to maturity.

Never set a hen in the poultry house, but have a place somewhere that you can move them to so that the other hens can not bother them and where they can not get out. I use part of the stable in the barn for this purpose, and when a hen becomes broody I move her into this room and place her on a nest with two or three eggs under her, then shut her on until the next afternoon, when I open the nest so she can come off to get food; if she returns to the nest after eating all is well, if not she is caught and shut on the nest until she learns to go to it herself. A box of corn and another of grit or oyster shells is placed in this room so that she can help herself. After I have at least four or five hens setting in this way I give them the eggs I wish them to hatch, giving not more than fifteen eggs to the hen (and if early in the season, or if the hens are small, giving less); then, if they hatch reasonably well I have from forty to sixty chicks.

Now, how shall I coop them so as to have as little trouble with them as possible? No doubt the most of you would place each hen with her brood in a small coop or an old barrel, and be more or less successful in raising them, but as each brood of chicks kept in this way will be as much trouble as several would be if kept together, I do not think it is the best way, so I will try and tell you another plan which has given me very good satisfaction. For the past two or three years I have been using two large coops, four feet wide and six feet long, two and a half or three feet high at the back and three and a half or four feet high in front, made tight at back and ends, with water-proof roof, and lath two and a half inches apart in front, so that the chicks can get out and in whenever they wish. Instead of having a lamp to keep the chicks warm (as I do in the brooder), I place two of the largest and quietest of the hens which hatched them in the coop together, and give them the whole lot of chicks, if not more than forty or fifty, and I can then care for them with very little trouble. The chicks can remain in this coop till fall, while, if I had placed them in small coops, they would have outgrown them in a few weeks and would have to be housed somewhere else. About the best place to locate the coops is in the orchard when not too far from the house; at any rate they should be where the chicks can have plenty of shade in hot weather.

After the chicks are hatched and placed in the coop I do not make the mistake which a certain professor once did. It seems that he had come into possession of a hen which became broody and was given a setting of eggs which in due time brought forth a very promising brood of chicks that the professor admired very much. However, in a few days he noticed that his chicks were not looking as bright and lively as they had at first, so he called in a friend and inquired what was the trouble. After looking at the chicks a few moments his friend inquired, "What do you feed them?" "Feed them!" exclaimed the professor in surprise, " why, I thought the old hen had milk enough for them." Do not make this mistake, but feed the chicks. Five times a day is none too often to feed them, at least for the first two weeks. Perhaps the best feed for the first day or two is bread crumbs fed dry or slightly moist with sweet milk. Another very good food for small chicks is made by taking cornmeal, three parts, and fine bran, one part, and baking it into a pone or johnny cake, as it is sometimes called. Oatmeal and millet seed are also very good, and after the chicks are two or three weeks old, whole wheat and cracked corn may be added. This will give quite a variety, which is very important.

After the chicks are a few weeks old and I am feeding them but three times a day I give them a mash in the morning composed of three parts cornmeal and one part fine bran to which is added a very small quantity of meatmeal; this is fed moist, but not sloppy. At noon I feed wheat and in the evening cracked corn or whole corn, and keep this up till early in the fall, at which time the pullets, if they were hatched early as they should have been, will be about ready to begin laying.

As yet I have not said anything about watering the chicks. This, however, is very important, and clean water should be kept before them all the time. Another very important article is grit. If plenty of fine gravel is at hand the chicks will help themselves to all they need. If not, it should be supplied in the form of some of the manufactured grits now on the market.

Now, there is one thing more that I wish it was not necessary to mention, but am sorry to say that it is, and that is the lice. Of these there are three kinds that are quite likely to cause trouble. The first to appear are usually the large head lice which live on the head and neck of the chick. A few drops of melted lard rubbed over the head and neck of the chick will prove an effective remedy. The next kind to give trouble is the small spider lice, or mites, which stay in the cracks and crevices about the coop during the day and attack the chicks at night. Whitewashing or painting the inside of the coop with some liquid lice killer will usually take care of them. The third kind is the large body lice that live among the feathers on the body of the bird. Dusting the chickens with some good insect powder will rid them of this pest if applied three times about a week apart. Lambert's "Death to Lice" has given me very good results.

A short time before the pullets begin laying they should be placed in their winter quarters. I believe the best house for winter is what is known as the scratching-shed house; that is, a house having two rooms, the one closed up as tight and warm as it can well be made with only one small window in front, for the roosting and laying room, the other the scratching shed, which is made tight on three sides and left open in front except for a covering of wire netting and a muslin curtain tacked on a frame so it can be opened or closed at will. The floor of this shed should always be covered with straw from three to six inches deep. No matter what kind of a house you use always have the floor covered with straw, and throw all grain fed to chickens into it so as to make them scratch and work to get it. This is fun for the chickens and will keep them out of mischief as well as give them plenty of exercise, which is very important; lazy hens, like lazy people, never amount to much.

During the winter my method of feeding is somewhat as follows: In the morning I give a mash composed of one part cornmeal, one part ground oats and two parts bran with one part meat meal to twelve or fifteen parts of the above mixture. In the evening I fill a bucket one-third to one-half full of clover hay cut very fine, then cover it with boiling water and let it stand till morning, when I fill it nearly full of the meal mixture, stir it all together, adding more water if necessary to make it moist, but not enough to make it sloppy. This I feed in troughs, and try to give just as much as will be eaten in a few minutes. I do not want any feed left in the trough, but would rather have the hens still a little hungry. They will then go to scratching in the straw, which is better for them than standing around loafing, as they will do when they have had all they can possibly eat for breakfast.

At noon I feed wheat, always throwing it in the straw on the floor of the pen, and give a little less than I think they would eat, and in the evening give a full feed of corn. Once or twice a week I give a feed of whole oats in the morning or at noon. Green food of some kind must be fed if the hens are expected to lay well during the winter. Perhaps the best way to furnish this is to keep a head of cabbage hanging in the house, so the hens can get at it; if that can not be had cut clover feed, as I have already mentioned, is the next best.

A box of grit and oyster shells should be kept in the house so the hens can help themselves. Fresh water should also be kept before them all the time. A box of road dust or dry earth should also be provided for the hens to wallow in.

During the summer it is not necessary to feed more than twice a day when the hens are allowed the run of the farm. In the morning I feed the mash the same as in the winter, with the exception of the clover, and wheat or corn in the evening; usually wheat one evening and corn the next.

During the summer the broody hens should be promptly broken up, which is easily done by penning them up in a roomy coop on the ground. Three to five days' confinement in this coop will usually be sufficient if they are penned up the first evening they are found on the nest. They should have water and the same food as the rest of the flock.

Do not expect a large egg yield from old hens during the winter; if you do the chances are about ten to one that you will be disappointed. I have made several experiments along this line, and usually get more than twice as many eggs from pullets as I do from the same number of hens, but in order to do this the chicks must be hatched early. April is the best month to hatch any of the American breeds, while May will do very well for the smaller varieties. They will then have time to mature and begin laying before cold weather, and if properly cared for will lay well all winter.

As a rule I believe the American breeds are the best suited for the farmer;

they are of fair size and almost any of them are good layers if properly fed and cared for. Of these the Plymouth Rocks and Wyandottes are the most important, and as they are bred in several varieties, almost any one can suit himself as to color.

FEEDING AND CARE OF POULTRY AND TREATMENT OF DISEASE.

By Mrs. T. J. Miller, Leipsic, Ohio.

[Read at the Farmers' Institute held at Continental, Putnam County, January 21 and 22, 1901.]

We have found wheat and corn to be the best general feed for fowls with a warm meal once each day. Corn will produce fat and heat, and a hen that is too fat will not lay well, will be lazy and will not exercise enough, and will be more susceptible to disease. One feed of corn per day is enough. Let wheat form a large percentage of the hens' rations, especially in the spring. This contains the elements necessary to growth and flesh, not fat. Wheat thrown among straw so that they must scratch for it will give exercise and promote health. Let the warm meal be boiled potatoes with any refuse meat or scraps from the table, mixed with meal. A quantity of dry bran will be eaten with relish by the hens, especially in the winter when the ground is frozen, and they will give you more eggs than with other feed.

All the bones from the table and as many others as you can get should be pounded up with a hammer and given to the flock. If you would like some fun just pound them up when the hens are present. If you are not careful you will hammer the bills off your hens.

If the ground is frozen you must give grit, which may be broken dishes, broken glass, stone or gravel; hens can not digest their food without this.

Then you must, in the winter especially, give oyster shells or old plaster. The shell of an egg is mostly lime. If you have done all the other necessary things and neglect this you will fail, because a hen can not and will not lay unless she is fed material out of which to make shell. The most sensible thing to do is to feed what is wanted for a certain purpose.

WATER.

Do not neglect to give the hens water; they will drink great quantities. Do not depend upon puddles, but give it clean and fresh, and warm in the winter.

I ought, perhaps, to speak of the hen houses. Sixteen by eight is a good size for fifty hens, roof sloping to the north, front ten feet high, rear six feet, sided with shiplap pine siding with two windows in the high or south side, containing twelve lights each of 10x15 glass, sash fitted well and glass puttied in, door in end of house. We have two constructed in this way. Three men can build one this size in a day. Ours are covered with No. 1 cedar shingles. The floor ought to be dry, no matter of what material it is made—gravel, coal ashes, plank or cement—and ought to be kept clean. Use your coal ashes for bedding; this will keep everything dry and is a perfect deodorizer. Keep lime away from the floor of your henhouse unless your flock contracts some disease; then drive the hens out and use lime freely; this will burn up the poison and disinfect the premises, but before you allow your hens to return you must clean the house thoroughly and cover the floor again with coal ashes. Whitewashing the coop and roosting places, sprinkling with carbolic acid and burning sulphur are all good things to do, always remembering that an ounce of prevention is worth a pound of cure.

Large breeds need no roosts—just bed with straw and clean out often. For small breeds roosts should be made two or three feet from the floor on a level and in any way that will be the most convenient for you.

While you want your coops tight, you must have them well ventilated. If in the morning the walls of the house are covered with frost, that is evidence that the house is not well ventilated. Do not have the cold air come directly upon your hens, but in from the top under the roof. The foul air ought to go out near the bottom. Direct drafts upon the hens will cause roup.

DISEASE.

We are troubled mostly with gapes and cholera among our fowls. Roup does not often come to us, but we have had it; when it does come we try to check it immediately. I am sorry not to be able to give you a good remedy. We have tried earnestly and long to find one, but have not as yet succeeded. We just cut off the head of the sick one and burn it, drive the others out of the house, thoroughly disinfect it and in three or four days allow them to return to their quarters. I know of some who have been made sick by inhaling the terrible breath of the hen when afflicted with this dread disease. Roup is more destructive among turkeys than hens. It is contagious and will remain in a henhouse for years, hence the necessity of perfect ventilation and disinfection. You can recognize it by the red circle around the eye, watering of the eye, yellow matter in the eye and at the sides of the bill, white and yellow coated throat and fetid breath.

Cholera is largely due to indigestion, bad water and filthy quarters. You can recognize it by the pale comb, drooping wing and tail and constant desire to drink. The droppings will be yellowish green and of unusual quantity. Black antimony will cure and also prevent it. Take three gallons of chopped feed, wet it, but do not have it sloppy; mix in it one-half to three-quarter pounds of the black antimony; give in the morning and in the evening. Do this for three days. then wait a day or two, then repeat, and your cholera is done for that time; do not feed anything else while you are feeding this. This amount will feed from sixty-five to eighty hens. Give them all they will eat; if they do not eat well at first put in some wheat.

Gapes are caused by worm in the wind pipe. Recent investigation has proven that the minute animal from which comes the gapeworm is eaten in the latter part of the summer by the angle or fishworm and is thus preserved from freezing to death; the angleworm in turn is eaten by the little chicken, thus we have the gapes. The remedy is one tablespoonful of glycerine to one drop of carbolic acid; in these proportions give any amount. In applying it use a feather with the sides stripped from it; this dipped in the glycerine a day before using will work better. Put your finger on the chick's throat, choke it a little until it puts out its tongue, drop a sewing thread over the little hooks at the root of the tongue, draw the tongue forward; this will expose the opening to the windpipe; insert the feather after being dipped in the glycerine; give two or three quick turns; this will often remove the worms or enable the chick to do so. You may have to repeat the treatment. The carbolic acid will make the worm release its hold, the glycerine will smooth and heal the windpipe. But be ready to remove the worm if the chicken sneezes it up; if you do not and they fill up the windpipe the chick will die, and that very quickly.

ANIMAL INDUSTRY.

By T. B. NICHOLS, Nice, Ohio.

[Read at the Farmers' Institute held at Amelia, Clermont County, December 31, 1900 and January 1, 1901.]

Herbert Spencer says if you want a good man, you must first get a good animal. And just so with our domestic animals, get as near a perfect organism as possible. Every different species of animals follows a type, and the type is variable, subject to modifications, and while we may not be able to create a new species we may so modify the type that it would seem to have almost lost its identity. It is through this variability of type that we are enabled to make such progress in improving our animals. In the effort to build a better animal the breeder finds the law of reversion to type, and it is only by constant vigilance and the most painstaking effort that progress is made in producing in each succeeding generation a better animal than the one that preceded it. In discussing the question of animal industry we will confine ourselves to three of the leading varieties found on our farms, namely, the horse, the cow and the hog, and we will take them up in the order named.

The question that confronts the farmer of today is what kind of an animal can he produce that will bring a good price, for it seems that this is an age of avarice, when, to borrow a phrase of our political friends, the dollar is the paramount issue.

What kind of a horse can we raise with profit? Here we find the variability in type; we find in him a subject where the laws of natural science may be applied and bring about the most marvelous results. There was a time when it paid the farmer to raise any kind of a colt. That was when the horse was the motive power of the street car and before the railroad had spread out its arms in every direction. But things are altogether different today; the street-car horse is no longer needed, and the common livery nag is in but light demand. Then the question is, What kind will pay? There are just three classes of horses that it will pay to raise today; they are harness, race horse (and this includes both trotter and pacer), the coach horse and the draft horse. The race horse class may be subdivided so as to include the road horse, for the road horse of today must have speed enough to go out and race for the money, but it does not follow by any means that the race horse is always a road horse. The man who is breeding the race horse has but one idea, and that is speed; it does not matter particularly what the horse looks like, how large or how small he may be, whether he is smooth or rough, black or white, or any other color; he may have to wear a toe weight, quarter boots, knee boots, elbow boots, scalpers, shin pads, speedy cuts and hock protectors and even the hobbles, yet, if by the aid of all these mechanical appliances, he has the speed to get there first, it is all right and he has accomplished the object of his breeder—he has won the first money. It is to him we are largely indebted for our knowledge of scientific breeding. It was through him that breeders began to inquire into the possibility of the transmission of acquired habits; breeders began to study the laws of natural science, and they found that the entire animal kingdom followed a type; each species followed its type and was distinct from all the rest. Another perplexing problem confronted them; they found there was a constant tendency to a reversion to type; they found that type was variable and subject to modification and that it required constant vigilance, care and attention if any progress was made toward the ideal in view. It was by recognizing these facts that it became possible for Mr. Hamlin to produce that king of trotters, The Abbott, 2:03¼. Breeders find it less difficult today to produce a 2:10 trotter than they did forty years ago to produce a 2:30 trotter. Never was there such an array of equine greatness as was displayed this past fall; The Abbott, Cresceus, Charley Herr, Lord Derby, Boralma, Lucile and a hundred others that could be named, could trot better than 2:10. This is simply marvelous, but it shows what the intelligent breeder can accomplish. Now, I do not mean to say that the colt can be just taken out of the pasture, and without any education, be able to trot 2:10 at the first effort, but it has given us an animal with the latent power which the skillful trainer may, by patient labor, develop. This horse brings the top price, as is proven by the sale of The Abbott at public auction for $26,500.

The next horse to consider is the road horse that is used on the speedways of our large cities. He must have the speed of the race horse, but he must have much more than mere speed; he must have beauty both of form and gait; his action must be absolutely true, both fore and aft; he must wear nothing but quarter boots and his harness. The ideal roadster is Lucile, 2:07, to wagon, the property of C. K. G. Billings, for which, if I remember rightly, he paid $6,000.

If I were asked what should be considered first in raising this class of horses, I would answer pedigree, and would emphasize it by repeating pedigree, as without it I would never expect to achieve any degree of success.

Now we will pass on to the coach horse. The coach horse should be 16 hands high, although if he is unexceptionable in other respects, he may pass at 15.2. This, perhaps, is the most profitable class for the average farmer to raise, as he will bring a good price if only broken to the halter, but, like the others, the better broken he is, the more money he will bring. And right here let me say that of all the breeds of coach horses, the American trotting bred is the best, as is easily proven by the shows and auctions where the trotting-bred horse always wins the highest prize. Mr. Tichenor, of Chicago, the largest dealer in coach horses in America, bid at the late sale at the stockyards at Chicago on Joy Maker $2,600, and that was not enough to get him, as he went to $2,700; and the road mare, Mad Onward, brought the snug little sum of $5,900. These are but a few samples of what the trotting-bred horse will bring when you have developed the right kind. But to produce that kind it is necessary to have a good dam as well as a good sire, and in attempting to produce the highest type of coach horse, one that will bring the highest market price, I would select the dam full 16 hands, standard bred, color bay, black or chestnut, with good style and as near perfect action as possible. Then I would select a sire a little better if possible, and with such stock you could rest assured that you would attain a high degree of success, and that it would be a paying venture from the start. The great trouble is that men, or the most of them, at least, seem never able to decide just what they want, and never have a horse that anybody wants.

There is still another class that will pay the farmer a handsome profit to raise—the draft horse; and here we find that it is pounds in place of speed that gives the value. The draft horse should weigh 2,000 pounds, should have good flat legs, good feet and fine style; good form and good style count many points with the city business man who uses the surplus stock of the farm. We have very few draft horses in Clermont county, and it should be the aim of the breeder of this class to get the dam as near the 2,000-pound mark as possible, and never mate her with a sire of less weight. In this class color does not count for as much as in the coach or road horse, but it is an important factor, and should always be looked after. This class of horses will not likely ever be over-produced in this country. While we go to Europe for our heavy breeding horses, we hold the proud distinction of producing the monarch of the track and speedway, and the horsemen of Europe come here to pay homage to our equine king.

We will now consider cattle, which we will study under two classes, the dairy breed and the beef breed. There is a class of writers who assert the claims of what they call the dual purpose cow, but I want to say right here that the dual purpose cow is a myth and exists only in the imagination of its advocates. I believe in specialism, although all men can not be specialists; life is too short to learn everything. A man con not be a lawyer, a doctor, a preacher, a carpenter, a farmer and a blacksmith; who would employ a lawyer of this kind to defend him if he was being tried for his life? If any one was foolish enough to do this the chances are that while he was getting up his sermon or mending his plow, they would hang his client. Or who would want a spiritual adviser who dispensed theology one day, traded horses another and mixed things the other five? The chances are five to one that in the end you would find yourself in the wrong country.

There are, as I said before, just two distinct breeds of cattle, the dairy and the beef. To determine just what you want or what best suits your condition, you must study your environment; if conditions favor dairying, and it suits your taste, then study the dairy breeds, and here, as in the trotting horse, pedigree counts many points. I would add that, like the trotter, she must be a first-class animal to have a high value; as the horse must be able to trot dangerously near the 2:00 mark, so the dairy cow. If it is butter you want, she must be able, when at her best, to hover right close around the fifteen-pound per week mark, and if she can not come to the ten-pound mark, sell her to the first man that will buy her, and get her off your hands, for at the present price of butter you can not figure any profit with a less return of butter fat. It takes but little more labor to keep a good cow that you can well be proud of than it does to keep one that you are ashamed to have your neighbors see. Why, I know a lady who made enough from her butter in one year to keep the family and take a trip across the continent, and she didn't have a first-class market to dispose of her butter in, either. Like the man who was trying to breed the race horse, who looked and bred for speed alone, so this lady was looking for butter, and she cared nothing about the quality of the meat when it was converted into beef; butter was her sole aim, and nobly did her little Jerseys respond. It is hard to see profit in the dairy when the butter is sold to the huckster at from ten cents to twelve cents per pound in the summer and sixteen cents to eighteen cents in the winter; under such conditions. with the present price of beef, the beef breeds might be preferable. There are three breeds of beef cattle, each of which claims superiority over all others. They are the Shorthorn, the Hereford and the Aberdeen Angus. I will not attempt to set forth the merits or demerits of either of these breeds; they are all good. But do not, under any circumstances, attempt to mix the dairy and beef breeds; if you do you will spoil both.

And now a word for the hog. What a different animal he is today from what he was in our boyhood, and here we see in a marked degree what intelligent breeding has done. It was in the Miami Valley that the Poland China hog originated, and a better one is hard to find, although there are other breeds that are good. We hear considerable said of late of a pig called the Tamworth, but his description answers too much the description of the old razorback pig of our boyhood that could run like a quarter-horse, root up a ten-acre lot before breakfast, and must be near two years old before he could be fattened, but the labor of years is not going to be supplanted by any of the old-time animals. We have too much admiration for the man who spends sleepless nights trying to solve the problem of how he can produce the 2:00 trotter, or the cow that will produce thirty pounds of butter per week, or the hog that at eight months old can be made to weigh three hundred and fifty pounds. What a satisfaction to Mr. Hamlin when he looks on The Abbott or Lord Derby; or Mr. Fuller when he looked on Mary Ann of St. Lambert, with her record of thirty-seven pounds twelve and three-quarter ounces of butter in seven days, and to know that it was scientific breeding that produced these marvelous results! And how I pity the man that can be satisfied with the plug. whether it be horse, cow or pig! Such a man is built wrong; the finer sensibilities have been left out, and he comes dangerously near the plug man.

We will now turn to the soil. Many of us remember when half of the area of our county was covered with a dense forest—gigantic poplars and oaks towered a hundred feet high, and hill and valley were covered with these grand old trees. Nature made ample provision for the fullest development of all forms of life, but it never made any provision for waste. Nature thoroughly understood her business when she covered these hills with the forest, but what wretched ignorance man displayed when he tore down this magnificent work of ages. We find under the changed conditions that the moisture is not evenly distributed throughout the different seasons of the year, as it was when our forest was here to act as a mighty reservoir to hold in reserve the surplus water, to be given off in time of need. We see under the changed conditions that we have floods and droughts. The spring rains are downpours, and then, in the latter part of the season, when our corn is needing a large amount of moisture, comes the drought, and the late crop or the one that is maturing slowly is damaged if not entirely ruined. Some means must be devised to meet these conditions. It has been said by some one that he who made two blades of grass to grow where one formerly grew, was a philosopher and a benefactor to his race, and men have kept repeating this saying for years, without questioning the soundess of the philosophy. There is no need of increasing the number of blades, but what we do want is to increase the size of what we already have. Why, there are farms in Clermont county so poor and the grass so small that a hungry sheep would be ashamed to nip it off in daylight. The only remedy for these worn farms is through animal industry. If we keep all the stock that the farm will support we necessarily keep a considerable portion of the land in pasture, for that is the cheapest method of keeping the stock through the summer months, and although it may be pastured close, it is still gaining something by the rest; and the animals being housed during the winter the manure that may be saved and applied to the fields that are plowed, stimulates the crop so that it matures early and is less affected by the drouth in the latter part of the season. There are three farms that have been under my notice for the last twenty years; on one of them a rotation of crops has been followed, and the farm has improved under this method; on the other two, no attention has been given to rotation, but about all the stock has been kept that the farms would support, and the two farms that have been stocked up to near their full capacity have improved immeasurably more than where rotation was relied on, and besides the advantage in an increased fertility of soil the profits are in favor of the farms with the stock. Another decided advantage in favor of the stock farm is that the man who keeps stock makes it the chief aim of his business, constantly tries to improve his stock, and through this laudable ambition he becomes a better man, and is a benefactor to the community.

RAISING CORN.

By **Samuel R. Battin**, Selma, Ohio.

[Read at the Farmers' Institute held at South Charleston, Clark County, December 10 and 11, 1900.]

SELECTING SEED.

This naturally comes first, for without good seed a crop can not be expected under the most favorable conditions. For years our plan has been to choose the best ears while husking, ears with straight rows and good-sized grains, which extend over the extreme point and well over the butt end; the last-named condition insures an ear that will break off easily in husking; we want the seed ears to be uniform in thickness from end to end. When selected, we put the seed in some place where there is a free circulation of air, but not where rain or snow can reach it. We endeavor to secure much more than we expect to use. When planting-time comes, we again select the best, using only the ears which have the longest grains, extending over the ends; we use the whole ear, not "nubbing off," as is the practice with many; I am satisfied it is a mistake to do this. We always shell by hand, noticing carefully as we commence an ear the condition and length of the grains, whether cracked or otherwise defective.

PLANTING AND CULTIVATING.

We prefer sod ground for corn, and think clover sod preferable, but this implies a three-years' rotation, which is not always practicable. We have had best results when the ground was broken in winter, or at least early enough to get the benefit of the late freezes, which do much toward pulverizing the earth; the freezing and thawing settles the ground and makes it hold moisture better than when broken later. We break the ground to a good depth and thoroughly, taking care that there shall be no cutting and covering done in the job. We prefer to break in rather large lands, thus avoiding too many cleaning-up furrows. Having the ground thus carefully and thoroughly broken in good season, it is much easier to get it into good condition for planting than later, when the sun has more power and dries the clods, making them so hard they are often exceedingly difficult to break. Probably the disc harrow has become as much of a general-purpose implement as any tool we have in use at this time. Ground broken as I have recommended can be put in good condition for planting with the disc, lapping one-half and following with a plank rubber. For a number of years we have planted our corn the last week in April, we think with good results; the ground at this time is often in better condition than two weeks later. We use the Evans planter with plates having medium holes; these drop three or four grains in a hill and, if the seed has been prepared as heretofore recommended, this is ample and needs no thinning, thus saving a laborious and back-aching job. The grain should not be planted to exceed one and one-half inches in depth.

About the time the grain is sprouting and before the plant shows above the surface, the ground should be thoroughly harrowed; this, we think, is of more importance than any other working that it gets, for the following reasons:

The surface of the ground is worked all over and myriads of weeds destroyed that are just starting from the seed, and are now much more easily killed than later, when better rooted and having several leaves.

It often occurs at this season that heavy rains fall, followed by hot sunshine, a crust is formed and the corn can not get through it; the harrowing breaks this crust.

Sometimes we have a arouth at this season; a good harrowing forms a mulch of fine earth on the surface which holds the moisture rising from below, giving nourishment to the infant plant.

Some years ago John Gould, an able writer and speaker on agricultural subjects, at an Institute held in South Charleston, thoroughly enlightened us on corn culture. Before that time we had discarded corn plows with large shovels, which cultivate to too great a depth and leave deep furrows with high ridges between, thus exposing more surface to the drying of sun and wind, besides breaking innumerable roots, very essential to the growth of the corn. We have carefully observed the effects of deep and shallow tillage for some years, and are now fully convinced that the latter is the only correct plan for corn culture. For best results this working should be at least every ten days, and should be continued as long as it can be done without breaking too many stalks with the arch of the plow; after this time there will not be many weeds to cause harm.

CUTTING.

For the past two or three years, especially, it has been a nice point to know exactly when this should be done. We like to cut when the husk is a bright golden yellow and loosening from the ears; if cut in this condition we have good corn and good fodder; when left later to ripen we have sometimes had hard winds which seriously injured the fodder, many blades being blown off, making it almost worthless for feed. We make our corn shocks the usual size, twelve by twelve. When commencing to tie the horses for the shocks we begin at the place where the planter started in the spring, count six rows the way the corn was planted from the outside, and begin between the seventh and eighth rows the other way; this will make thirteen rows of corn in the first row of shocks; but as there are usually several hills in the outside row broken in turning, there will not be much more corn than in the others. The reason for placing the shocks between the seventh and eighth rows is that these rows were planted at the same time and are parallel and square; the corn-horse is also in that condition. If we start between the sixth and seventh rows there is a likelihood that the hills are not exactly opposite, one row being planted going out, the other coming back; with this condition in starting the shocks are more liable to become twisted and eventually fall down, the corn being more or less injured. We always insist on having every shock in its exact place in the row both ways; it takes no more time than to place it otherwise; it adds much to the appearance and is more convenient in seeding the ground to wheat.

If the corn is heavy, as is usually the case on our black land, two rows of corn shocks is enough for one row of fodder. Here we have another hobby of our own; beginning at the side of the field we carry the first row to the second, the fourth to the third, and so on, thus making two rows of fodder together and two rows vacant; this is convenient for hauling, and the wheat is not all driven over; besides, it looks workmanlike and adds no more to the manual labor than the haphazard manner generally followed.

COWPEAS.

By Albert Deets, Amelia, Ohio.

[Read at the Farmers' Institute held at Amelia, Clermont County, December 31, 1900 and January 1, 1901.]

My first experiment with the cowpea consisted in the investment of one dollar and fifty cents in one bushel of seed, which was sown broadcast upon three-quarters of an acre of thin land, freshly plowed and not harrowed, but harrowed both ways after sowing. I do not know the name of the variety; it was simply "cowpeas." The seed was sown on the 10th of June, and the plants came up in about four days, growing thriftily through the season, but were too thick upon the ground to bear much of a crop. It was cut and threshed, yielding about two and a half bushels of seed. This seed was sown broadcast upon about four acres the following year at about the same time in June, but it did not do as well as the former crop, probably because the ground had been plowed early and had become packed, preventing the roots from striking down deep. The crop was more noticeably affected by drouth, which the cowpea ordinarily stands better than wet. Also some weeds and grass which had come up, escaped the harrow and choked it out to some extent. The intention was to make hay of it, but the frost got ahead of me by coming unexpectedly.

This year I expected to sow several acres, but the scarcity and high price of seed caused me to change my plan and try raising my own seed, as that is likely to become one of the questions we must meet and settle if the cowpea ever becomes a common crop here. I bought one-half bushel of the Whippoorwill variety, furrowed out one and a half acres the same as for corn, drilled the seed in with a corn drill about as thick as it would drop it, then furrowed between the rows and drilled as before, making the rows two feet apart when completed. After planting I cross-harrowed to level the ground. A wheat drill would be a much better implement to put the seed in with, because it would space the rows better and save labor. This crop was plowed twice; it grew well and got the start of the weeds, so that the latter did little injury; the plants spread out and filled the spaces between the rows nearly all over the patch. Almost all of the plants bloomed and ripened a fair crop; by the 20th of August fully half of the pods were ripe and should have been picked by hand and the vines mowed and made into hay, but having experienced no difficulty in flailing out the variety which I had previously raised. these were left to ripen all their seed. In mowing the ripened vines, many of the pods shattered and the seeds were lost; the remainder flailed out so hard, through having lain out for more than a week in that hot sun, which most of you will recollect, that as a last resort they were put down on a blue grass sod and tramped out, many of them being wasted. Had all been saved I think there were from six to eight bushels to the acre, demonstrating the fact that we can produce our own seed cheaper than to buy at one dollar and seventy-five cents per bushel. I succeeded in getting only about four and a half bushels from the acre and a half, but am now satisfied that the proper thing to do is to pick by hand early enough to make the vines into hay.

Cowpeas always leave the ground in good order. It could be worked up with a disc harrow into an indeal seed bed for wheat after mowing off the peas. I planted corn on one patch the next spring, taking in a few rows beyond the pea patch upon one side, and the difference in the corn was quite noticeable all summer and at harvesting time. In fine, with each experiment, my belief grows stronger that the cowpea is going to prove as great a boon to the southern part of Ohio as clover has in the northern portion.

THOROUGH CULTIVATION.

By G. E. JOBE, Selma, Ohio.

[Read at the Farmers' Institute held at South Charleston, Clark County, December 10 and 11, 1900.]

In whatever work man may be engaged, to be successful he must go through a course of study and training, so that his mind may be the better able to take up any new ideas, thoughts or ways wherein he may be able to grasp in an instant anything that may appear of advantage to him, whether it be by observation, by travel or by experimental work. It is for this reason that so many fine and substantial structures are erected all through our land to educate our youth and cultivate their minds, so they may be better fitted to take up the problems of life and solve their meanings.

At one time, when our soils were new, very little thought was required to prepare for a crop; very little time was spent in the school to learn how or by what means one could sow and reap to the best advantage. The former was unnecessary; the latter was impossible, because they did not have the facilities that we have at this day and age.

All of this thoroughness does not necessarily come by a course of study in a college or other place of learning. I think one of our best sources is by constantly putting to use what we already know and have seen, by using the best methods and discarding those that have been unprofitable, or by some experimental work not necessarily upon a large scale. Of course it is very disappointing to have a failure when we have done what we thought was our very best, but if we would investigate a little and see where the fault was we would very likely find something left undone that we should have done, and conclude that more carefulness at first would have been better in the end. It is very likely that next time we will draw upon our source of knowledge and overcome our former mistake.

I said that at one time not so much thought was spent upon the crops, or rather upon their cultivation; the virgin soil was so rich and fertile that to prepare the ground and plant the seeds was the hardest work to be done. It meant a good deal of very hard work to prepare and plant in those days; the huge monarchs of the forest had to be felled and cleared away; shrubbery and brush had to be grubbed up, not by some powerful stump and grub machine, but by the axe and mattock by a tired and bent back; log rollings were then often one of the ways of social gatherings; all of those things meant time and hard work. It is different now; the soil has lost much of its former fertility, and we find it more of a task to reap a harvest with only a little preparation. Then it was necessary to carry an axe to cut the roots as they plowed; now we hop upon a three-horse wheeled plow and go from early morn until late in the evening, with scarcely a stump or stone to hinder the speed, little thinking with how much labor our grandfathers plowed those same acres fifty years ago. I suspect that a large number of the men who plow in these days spend very little time or thought about the crop they are plowing for, or what plan would be best pursued to cultivate the crop to the best advantage. There are now so many new and improved implements to cultivate the soil and crops that it is difficult to decide which is the better one to use; they all have a place and duty to fulfill, and to say that one is better than another, or all others combined, would be unwise. One man might say a certain kind of wheat harvester and binder was the best to use, but in saying that how does he know, for he has never had any experience with the others? After all, it is not material which make of a plow or other implement we use, so that the work is properly done.

I do not suppose that any crop we raise requires more thorough or better cultivation than the corn crop. In one of our western states they affirm that "corn is king"; while this may not be true in Ohio corn is, I think. the key to almost all other crops. It requires more work than any other crop we raise and usually all other crops follow in rotation, with corn in the lead.

The plow then comes into use the first of all of our farming implements. I am not partial to the kind or name of the plow I use, but I do not like one that will pitch and break up the sod in plowing so the surface will be rough and uneven; of course one may raise as many bushels per acre, but think of the extra work required to prepare the field for sowing! I know farmers differ in regard to the different ways which are regarded the best for plowing. In driving through the country you can easily tell each man's preference as to whether he wants the furrows thrown flat or well upon the edge. Either way may be all right in certain soils, but in a stiff clay soil and a year of an abundance of rain I think it very unwise to throw the furrow flat. I always want my furrows well edged, and there are several reasons why this is the best method. I find it much easier to pulverize, especially if there should have been several hard and beating rains. Again, if I have a manure crop spread upon the surface before plowing, I get a better distribution of the manure; there will be some near the surface so that the first rootlets can get the benefits without waiting until they grow to the depth of the furrow to obtain what has been placed there for them. Another reason is the advantage of drainage; water has a very easy way to escape where there are spaces left between the furrows; the cultivation can be more thorough by having fine bits of sod or manure mixed well through the soil, and all through the working season there is much more satisfaction in the crop than there would be if conditions were otherwise.

After the plowing comes what I think the most important period in thorough cultivation; generally speaking, I think the crop is almost half tended if the harrowing and pulverizing are well done; when the surface is level and fine and thoroughly pulverized the conditions are as nearly perfect for a seed bed as one can make them. I do not wish to advocate any special implement for the work of preparing the soil other than to speak a good word for the plank drag, an implement any person can make and operate, cheap in its construction, but splendid in results. I have it made with good heavy plank, and am not afraid to hitch a good team of horses to it: it must have weight to do the best work, and if the conditions are right I am satisfied with its work. I let the drag follow the harrow as often as I think it is necessary and then the ground is ready for the planter or drill. I have heard some farmers say they would rather plow corn where a drag was used before the planter than to plow where the roller had been used. I am not able to say which way is the easier, but I am very sure that the cultivation is the easier when the harrowing and pulverizing have been most thoroughly done.

I hardly need say anything about methods of planting or sowing the seed. I think it is unwise to be in a great hurry: better go a little slower and be sure the work has been well done, than to go too fast and find after finishing that the grain has been unevenly coverd and the hills in a hit-and-miss style, which will be sure to give the boys trouble when corn-plowing time comes. Where the corn has been unevenly covered, some very deep and part of the rest too shallow, there will be a big job of replanting; what was too deep will not come up in the proper time, and the part that was covered very little, will not have enough moisture to bring it up, so both hills are cut out by the man with the hoe, and consequently there is a very uneven crop to work, all of which is a source of worry and vexation to the farmer.

Now comes the time to decide which crop shall have the best treatment. I never thought there was any money in weeds, and if we neglect the first and second cultivations there is apt to be trouble ahead. Now is the time to use skill. Every stalk that is left carelessly covered means the loss of a good ear of corn next September, and what weeds are left in and around the hill means extra work and more expense when the corn has to be put in the shock. I would go further after a weed than I would go to see Aguinaldo; either would ruin our country if left alone, so they would better be weeded out.

In this vicinity, where wheat follows corn to a great extent, it is necessary to prepare the ground and cultivate the corn thoroughly, so a good seed bed will be left for the wheat seeding. Farmers are taking more interest in preparing the ground for seeding than was done in former years. I have seen wheat seeded in the corn ground where the weeds were as high as the drill. What prospect there was for a paying crop is more than I can imagine. While that method of seeding was to the extreme one way, I sometimes wonder if we are not ging to the extreme in the other by using the disc harrow and cutting the ground almost too deep to make a good seed bed. If the drag or roller were used to settle the soil, I think the extra labor would be both profitable and beneficial. In the fall of 1899 I harrowed my wheat ground, after the corn was cut, two times, once each way, with a heavy three-horse harrow, thinking I would have the field in splendid condition and also to hold and conserve all the moisture I possibly could. The results were not what I had hoped for. The Hessian fly was there in too large numbers for the wheat's health, but I am in hopes that my extra work was the means of making the wheat grow as well as possible, and thus giving to his flyship such a bad case of founder that he will not appear soon again. The prospect for a good grass crop is splendid, and I do not think I had all my work for naught.

We have other crops that need our attention as well as the larger or field crops; our gardens and orchards will show the results of a little plowing and hoeing. Our most successful gardeners and fruit growers are not merely contented with their work after they have finished the planting season. They must carefully cultivate the small plants, fight plant diseases, use the spray pump, and study the existing conditions that surround them. I think that too many of our farmers are careless in attending to their gardens and orchards in the early spring; everything must be sidetracked to let the corn planter have the right of way. Did you ever stop to think what good results might be had if you had only taken a day or two to clean up and put in order these small patches of ground? It takes only a little time to go through the trees and remove the dead limbs, or to cut out what are not needed for the growth and beauty of the tree; it requires only a little time to set in a new tree where one died last year; it takes only a little time to plant small patches of the different kinds of berries, and after these little patches are carefully and thoroughly cared for I think I can see the family surround the table with satisfaction and happiness that can come to none but those who have these products to enjoy.

Last week I saw in one of our farm journals that a prominent fruit grower of New Jersey had said, if it were not for disease and insects, there would not be any profit in fruit growing: the farmers would send their surplus fruit to the cities and it would be so cheap that there would not be a chance for them to compete. I believe this statement must be true, but am sorry the slur is thrown upon the farmer.

For us to plow and plant and then quietly sit down with folded arms and wait until the crop has grown and taken care of itself will never make a man prosperous in these times. It is the constant thoroughness and deep thought mixed with toil and labor that succeeds in this day and age. What is the use of working and toiling without an object in view? What is the use of spending our energy aimlessly upon any work, when if only a little time and thought were spent and a little more thoroughness shown in our methods we might have better results and larger profits? The day is past for the intelligent farmer to merely plow and plant for the sake of his health; we are living in an age that requires thinking and perseverance. The moment we relax our grip upon the reins some one else will drive around us. I know every farmer in this audience likes to see good, vigorous and fine fields of grain, and each one will take a special delight in telling how he cultivated his crop and the method he took to make his work successful. How would it be if the conditions were reversed? He would be sure to ask you to not mention the fact. Observation is a great help in this world. When we see some object that is better than we already possess, we are apt to ask all the questions possible for our information, and the more information we acquire the more we are given to observation.

We can cultivate thoroughness by making our work our study; at this day and age, when we have so many sources of help we ought to be well equipped for good and thorough work. The experiment stations are issuing bulletins every few weeks, giving out valuable information; these reports, with the agriculture press, the Farmers' Institutes, and other aids in large numbers, give us golden opportunities, and if we neglect them we will soon relegate agriculture to a place that will be too slow for the twentieth century.

CULTIVATION AS IT AFFECTS FARM CROPS.

By Weldon N. McKay, New Burlington, Ohio.

[Read at the Farmers' Institute held at Xenia, Greene County, January 25 and 26, 1901.]

Perhaps the majority of this audience are directly interested in agriculture, and also in the cultivation of the soil, which is incident thereto. This being the case, let us consider for a few minutes why we cultivate the soil and some of the effects that are produced.

The rocks that formerly made up the crust of the earth have been broken down and decomposed, by the different agencies, until we have as the result, common soil. If a portion of this soil be placed under the microscope it has the appearance of coarse gravel. These fine grains contain the elements that support plant life. Ordinary soil is never deficient in plant food, but it may be, and very often is. deficient in available plant food. Of the ten or more elements required by plants only three are ever exhausted; these are nitrogen, potash and phosphoric acid. Through chemical action these elements are gradually being liberated, but only a small portion becomes available at one time. Hence by continued cropping we often exhaust these elements to such an extent that the crops are visibly affected. By cultivation we endeavor to assist nature, and hasten as well as promote the liberation of plant food. It was said by our forefathers, centuries ago, that "tillage is manure." While this may not be true in the exact sense of the word, there can be no doubt that tillage does liberate plant food for the growing crop, that if left to the slower agencies of nature, would be locked up much longer. In stirring the soil the different elements are brought together, producing chemical changes whereby plant food is set free. All of these chemical changes are hastened by the liberal supply of heat, air and sunlight afforded by a liberal cultivation. The main effects of tillage are the bettering of the physical condition of the soil, crushing the clods, allowing the thorough penetration of the air, and making it possible for the roots to grow unobstructed.

But the soil is not such a lifeless mass as it appears to the unaided eye, for each foot contains millions upon millions of microscopic germs. These are not all of one kind, but of many kinds, each having a separate and distinct office to perform. Without oxygen none of them can live. One class of these micro-organisms combine oxygen with nitrogen to form nitric acid. Then the nitric acid is attacked by a third class, which changes it into nitrates, in which form it is ready to be used by plants. Another class attacks the vegetable matter of the soil, causing it to decay and render up its plant food, while still another set use free nitrogen from the air, assimilating it in such a way as to make it available for plants. Hence when we stir the soil, and let in the different elements, we promote the best development of the microbes, besides producing the chemicals that make the mineral elements available. A mellow seed bed, with its many well-aerated pores, allows the roots to grow unobstructed in any and all directions and place their absorbing surfaces in vital touch with the soil grains and soil moisture. We can easily see that one of the worst conditions that could exist would be to allow a soil to get too compact, or a hard crust to form over the surface, for in either case the heat, air and light would be excluded to such a degree as to affect the growing plants.

With these few remarks, we will turn now to the more practical part of the cultivation.

Some years ago we purchased a disc harrow, which proved to be one of the most valuable tools we ever owned. We first began using it on timothy sod that was to be planted to corn, but after seeing how thoroughly it cut and loosened the soil, we began using it more freely, until now we cut all of our corn ground over twice, as the first step in the preparation of the seed bed. If, after following with a smoothing harrow, the ground is still somewhat cloddy or rough, we use a scantling drag. We prefer a good drag to a roller, as it mashes the clods about as well, does not pack the soil, and at the same time levels the surface.

In accordance with what has already been said, a crust should not be allowed to form while the corn is being cultivated, especially just before or just after it has come up. How often have we seen the growth almost stopped by a hard-baked surface around the young plants. We have never used a weeder, as clay ground often gets too hard for this tool to take effect; however, we have nothing to say against it. If a crust is likely to form just before or after the corn is up, we use a slant-tooth steel harrow. We now give our corn its first stirring with the cultivator about as soon as it is fairly up, while formerly we waited until it was some days old. According to the foregoing remarks, as to the many advantages of a loose, mellow seed bed, we can easily see the necessity of stirring the ground early, so that the corn may not be checked in the least. This first stirring with the cultivator should be close to the young plants, and as deep as the ground was broken, if possible. This will admit the air, heat and light all through the soil, and there will be no solid earth to check the outward growth of the roots. It is very discouraging, if in this first cultivation large clods are brought to the surface, but if the ground has been thoroughly cut with the disc harrow, as before mentioned, there will not, as a rule, be many clods left. However, if there be any, they should be promptly crushed with the roller while the corn is small. We practice a thorough and deep tillage while the corn is small, and after that the cultivation is shallow and level. It is surprising how soon the corn roots get to be a foot or two long, and if this deep cultivation is long continued, many roots will be broken. We use spring-tooth cultivators which have eight small shovels. These leave the ground more level than larger shovels would do, and allow us to plow shallow, but still stir all of the surface.

One of the main advantages of cultivation is the conservation of soil moisture. During an average season the greater part of the water used by growing crops is brought up from the subsoil by the force known as capillary attraction. The soil grains, even though they are very small, do not lie so closely but that there is left between them small spaces or tubes through which the water ascends. These small tubes, if unobstructed, reach to the top of the ground, and in this way the water will continually pass off into the air and be lost, but if the surface is stirred the capillary pores are broken, the air excluded and the upward flow checked. In short, the object is to keep a blanket of loose, dry soil over the surface; the finer the soil the better mulch it will make. The amount of moisture lost by evaporation from a compact soil is almost beyond belief. In regard to this the Ohio Agricultural Experiment Station says: "It has been shown that two hundred and fifty barrels of water may be lost from a single acre in twenty-four hours, in excess of the amount that would escape if the ground had been plowed early and harrowed at frequent intervals." Thus we see that it behooves us to look well to this matter of evaporation.

When wheat ground is plowed five or six weeks before it is to be seeded, there is afforded an excellent opportunity to reap some of the many benefits to be derived from a frequent and thorough cultivation. But we have not the time to discuss cultivation in all of its relations to this crop; suffice it to say that over-cultivation is a very remote danger to this or any other crop if properly conducted.

THE SELECTION OF SEED.

By L. P. Smith, Bartlett, Ohio.

[Read at the Farmers' Institute held at Bartlett, Washington County, February 8 and 9, 1901.]

If we use poor seed, thorough tillage and the most fertile soil can not remedy the defect; like produces like, but as progression is a law of nature we would improve the quality and increase the quantity of the grain by more careful selection, more thorough tillage, an increased fertility of the soil and planting at a time to insure the best possible results. I am inclined to believe that we would better raise our own seed or use seed raised upon a like soil and grown in a climate similar to our own. We may sometimes obtain a seed from some distant grower exactly suited to our soil and climate and superior to what we have, but one marked success would probably be followed by nine failures. We would not discourage experiment, but advise you to go a little slow in that line. We are not in favor of frequent change of seed. We would get a good kind, one suited to our soil and climate, then by careful selection, thorough cultivation and wise fertilization seek to make it still better. It may be well to give a few minutes' thought to each kind of seed which we use. In this it will perhaps be advisable to speak from personal experience, as one has a more intimate knowledge of his own failures and successes than of those of his neighbor.

First, we would call your attention to wheat. This is a crop which all farmers raise, or at least try to raise; some of us failed last year, still seedtime and harvest are promised us, and possibly we did not do our part. We had the seedtime certainly, but many of us could not reap what we had sown. "Whatsoever a man soweth that also shall he reap" is not literally true always; sometimes he is compelled to gather what his enemy has sown if he does *any* harvesting.

The true value of good seed in wheat-raising is often underestimated. Our labor, the fertilizer used and the rent of the land combine to make a considerable expense. A poor crop resulting from poor seed may pay very little for the fertilizer used, nothing for our labor, and much less for the use of the land. First, let us have our seed wheat perfectly clean, no cheat or cockle in it. It is false economy to raise weeds. Then when we sell our wheat, if the miller says it is such fine, clean wheat he will give us two cents a bushel more than the market price, it has a very pleasing effect upon our pocketbooks as well as our pride.

Let us grade our seed wheat so that all small, light, inferior grains are taken out. Thus we have left the finest, plumpest wheat, that which possesses the greatest vitality and is capable of producing the strongest and most vigorous plants. Some farmers would say sow a little more seed and let the inferior grains go. Would that be true economy? The inferior part is just as good for feeding purposes, then, besides many of the poor grains would grow and thus overcrowd the best plants. We think it best to sow only the best. Where we have a number of fields sown to wheat, should we find one superior to the others we would, if possible, save seed from the best field or from that part of the field containing the best wheat. It is often a good plan to test seed to see how great a percentage will germinate. This is true not only of wheat, but of all other seed.

Seed corn is something many farmers are careless about saving. It is a very good plan to gather out the best ears at husking time. These shou'd be placed where they will dry out thoroughly and be free from the ravages of mice and rats. There should be put away three or four times as much as is needed for seed, then when shelling a second selection may be made, and only the very best ears chosen. We should plant corn suited to our soil. We have known farmers to plant a kind of corn which, upon our light, sandy soil, would make very large stalks but fail to ear well. Such would do for fodder, but the most of us raise corn for the grain. For seed we choose medium to large-sized ears, being more particular about the grain than the size of the ears. We plant large, deep, heavy grains, bright and clear in color. One year we took time after shelling our seed corn to throw out all small, light, uneven grains, and we believe that it was time profitably spent.

One advantage of this was that we had no weakly stalks; another advantage was that more accurate dropping of grains in number by the planter was secured.

Apparently some farmers value cob meal so highly that they raise corn for the cobs. We fail to realize the superior value of cobs, and for that reason we raise no more than is needed to give the grain a good foundation. We have shelled fifty-seven and a half pounds of corn from a bushel, sixty-eight pounds, of ears. One advantage, we believe, in small-sized cobs, is that there will be more sound corn: another is it may be planted much later and still ripen before frost comes. While we do not favor very late planting in general, last year we planted a field June 6: it was ready to cut in one hundred days and made an excellent crop. No doubt you have observed the marked difference in the length of the grains of corn grown upon your poorest soil and those grown upon your richest ground, when the same kind of seed was used and the same cultivation given to both. A number of years ago my father drained a swamp and planted it to corn. It was really surprising to see what deep-grained corn grew there, much superior to that in the other parts of the field.

As to oats, we would advise that as careful attention be given to the selection of seed as in wheat. Even though we grow few oats it is wise and profitable to have those few of good yield and quality.

Our time is limited, but we desire to give a few words to the subject of grass seed. How few of us realize how much money we throw away in buying weed seed and an inferior quality of grass seed. We do not want weed seeds, but in buying a poorer grade of grass seed we often get a large number of noxious seeds. Weeds will grow of themselves, but it requires good farming to raise a profitable crop of grass. The most of us realize that we have enough weeds to combat without importing any. In fact, we feel like asking help to eradicate some of the pests which in the last few years have become bold and aggressive enemies to good farming.

Let us, then, first of all, secure good seed; let us plant wisely, cultivate carefully, harvest in good season, and *keep selecting.*

BETTER FARMING.

By W. J. Hawk, Wilkesville, O.

[Read at the Farmers' Institute held at Dyesville, Meigs County, February 4 and 5, 1901.]

Many are apt to think of farming as the mere cultivation of the soil, but in this paper we shall consider it in its widest sense as the great business of agriculture. No one will deny that there is great room tor improvement in all departments of farming, and we realize as never before that the system of farming pursued by our ancestors and by ourselves has been radically wrong and ruinous alike to land and owner. This fact is most apparent to the farmer of today, and we realize more clearly year by year that the farmer of the non-glaciated region of Southeastern Ohio has been plowing too much, and in many instances pasturing too closely. Very much of our best soil has gone to help make the great delta at the mouth of the Mississipi and we find that our land that once produced fair crops and abundant pasturage now usually produces very poorly; poor pasture and poorer meadows are the rule rather than the exception. Now it is hard to secure a good stand of grass and when obtained it lasts in paying quantities but two or three years.

I believe that the first and most important step in better farming is to do less plowing. Blue grass is well adapted to the soil and climate of this section of our state, and will take possession and make the best pasture in the world if the land is cleared even if it is not plowed, but the most of our farms have been so exhausted by continued cropping that it now fails to make a stand even when the ground is well prepared and the seed sown, and the same cry comes from the farmer of today that was uttered by the jailor when the prison doors flew open, "What shall I do to be saved?"

Generations of time and the best system of farming, brains and not brawn, must be employed to restore these everlasting hills to anything like their original fertility. Clover and barnyard manure must be the two great allies of the farmer. Much of our steepest land should be planted to timber and especially to locust for fence posts, many of which will be needed in the near future, and if not needed on the farm will find a ready sale at fair prices.

Again we should keep sheep to help in this restoration of the soil. Some one has called the sheep "the animal with the golden hoof," and it is a well-recognized factor in the restoration of worn-out land, but let us not pasture too closely.

We will now consider one of the most important things in better farming; this is stopping the leaks, or losses on the farm. Their name is legion and there is no farm without them. I do believe that the most and heaviest losses on the farm are easily avoided and most farmers suffer from them because they have given the matter but little thought and fail to realize the magnitude of their losses. Others have losses more because of laziness and shiftlessness than from any other reason.

The first loss that I wish to notice is in fertilizers; the most casual observer knows that on the majority of farms the stock is fed and managed through the winter with but little reference to saving manure. The stock may possibly be stabled during the night only to be turned by day into a large barnyard, or worse yet suffered to roam at will over the fields. This loss may be avoided by confining it by day in small level barnyards well littered with straw or leaves to the depth of several inches. Even the manure from the horse stables is so managed frequently as to be of little value, very little bedding being used to absorb the liquid manure which is allowed to escape through the cracks in the stable floor, while the remainder is most likely thrown out under the eaves and allowed to accumulate in great heaps, so that the ammonia escapes and the manure becomes fire-fanged and will scarcely pay for hauling out and applying to the ground. Among our best agriculturists, nothing from the stable in the shape of manure is allowed to go to waste. It has been shown by Professor Roberts of Cornell University that four thousand pounds of manure exposed in a pile two feet deep from April to September lost 62 percent. When the manure was put in the pile it was valued at two dollars and eighty cents per ton, and at the end of six months it showed a value of one dollar and six cents per ton.

Now if a loss of from one dollar to two dollars per day was being incurred from the leaking of a grain bin we should feel that the owner was a lunatic if he made no intelligent effort to prevent it, but if the same amount of loss is daily incurred by unnecessary waste of manure we have no criticism to offer.

Better farming demands that all surplus straw be used about the stables and converted into manure. It is often left in the field to stand for years and slowly waste away while the owner is spending his hard earned cash for commercial fertilizers. Waldo F. Brown once said in the Ohio Farmer that in a ride of thirty miles through a grain growing district he saw more than a hundred of these wasting straw stacks. In one place he counted twelve in sight and as many as four on a single farm of one hundred acres.

Another loss that better farming will remedy to some extent at least, is that arising from raising abundant crops of weeds on our farms. I think I am safe in saying that they exhaust the soil more than most crops. We can not afford to buy fertilizers and make and save manure to grow great crops of weeds, yet that is exactly what many of us are doing. The great trouble is to wake men up to the fact that system and thoroughness pays in everything. A spasmodic effort for a year or two will amount to but very little, but five or ten years of continued warfare will accomplish wonders. Professor Shaw once said that he went over a twenty acre field and cut all the noxious weeds in five and one-half hours, while four years before it took a man ten days to go over the same field, the weeds having been cut each year since.

Better farming calls for better care of our farm implements. How often do we see tools and farm machinery left weeks and perhaps months just where they were last used, to be warped by the sun and rusted by the dew and rain. We have often seen wagons and farm implements stand out exposed to the elements for weeks within a few rods of a barn or shelter, where there was ample room for storage. How often we see wagons, drills and carriages standing in open sheds where the storm blows in on them and, when the ground becomes soft, the wheels sink in over the felloes. If this be true of the more costly farm implements and machinery, those which cost less fare even worse; hoes, axes, forks, spades, etc., are scattered promiscuously about and when wanted have to be hunted for and are always found (if found at all) rusty, dull and unfit for use.

Again, better farming calls for better stock of all kinds than is usually kept by the farmers of this section of Ohio. I am firmly of the belief that the loss from keeping poor stock, and especially cattle, exceeds any other loss to the farmer. Good stock will eat no more than poor, and will usually improve a great deal faster on the same amount of food, and with this in its favor that it will sell almost any day at a fair price, while scrub stock frequently goes begging for a buyer at any price. Some twelve years ago I took the following from the report of the Chicago live stock market:

A stock raiser of Missouri shipped to the Chicago market for Christmas beeves thirteen head of yearling Herefords that averaged one thousand four hundred and forty-two pounds each, and sold for six dollars per hundred, or eighty-eight dollars and thirty-two cents per head. The next spring there were shipped to the same market one hundred and twenty-three head of sheep which averaged one hundred and fifty-five pounds each and sold for six dollars and seventy cents per hundred, or ten dollars and thirty-eight and one-half cents per head. I simply use these as an illustration of what can be done with the best.

Just one thing more and I am done. Better farming calls for better care of stock than many of us are now giving. It has been truly said that food is to the animal system what fuel is to the fire and it will take a much larger amount of food to produce a given weight where stock is exposed to the storms of winter as it will take more fuel to heat a room with doors and windows open than a close comfortable room. All experiments prove conclusively that an animal can not gain in flesh unless it is comfortable.

No man is so poor but he can afford a shelter of some kind for his stock. It may consist of posts set in the ground and covered with coarse hay or straw and boarded up with cheap lumber or even slabs. I am opposed to allowing stock to be without shelter on the score of humanity. Let us not forget the admonition, "Look well to thy herds and take heed to thy flocks." No man has a right to cause suffering, and any sensible man knows that stock can not be exposed to cold winds and storms without suffering. In the beginning God gave man dominion over beasts of the field and fowls of the air; is he not then under obligation to take care of them and make them comfortable? Then "look well to thy herds and take heed to thy flocks."

HOW SHALL WE IMPROVE OUR FARMING?

By A. L. Glover, Delaware, O.

[Read at the Farmers' Institute held at Delaware, Delaware County, January 28 and 29, 1901.]

It will be my endeavor to point out a few of the problems of the future that the average farmer on a small place will have to solve. I do not offer solutions to these problems but merely wish to offer a few suggestions and comments.

Times change with the growth of our country. People's wants change and we as producers must learn to supply them at a profit to ourselves and at the same time keep our land up to a good state of fertility. Happily, better farming and the new demands go hand in hand.

In order to live as one should live in America there must be an income. How to get a mere living out of a farm is no aim at all, but one should aim to get an income sufficient to live well and educate the children and live up to the times. In other words be a *new* American, live on a rural mail route, and telephone line, take a daily paper, and keep informed of the world's happenings. Let the aim be to improve.

How shall we keep up with the procession? Since we depend on the soil we must look after it as though it were a bank account that must never be exhausted. How to replenish the drain on our soil must be the foundation stone. It is not the immediate returns for which we should look, but the larger returns in the future. In order to improve our farming the first requisite will be to maintain or restore fertility. There being different ways of doing this, we must adopt the one best suited to our conditions, first deciding what line of farming to follow. This must be determined largely by the nature of the soil, our location as to markets, and other surroundings, as well as our likes and dislikes. In other words, we must study our calling to decide with what we may best hope to succeed. One of the late Philip D. Armour's sayings is as follows and to the point. "Everybody can do something better than he can do anything else. The thing is to find out one's specialty—calling some call it—and do that up brown."

Improvement in farming, then, seems to lie along what would be known as specialty farming. To make one line the main income and at the same time make use of whatever is needed to keep the land in condition without depleting its productiveness but rather adding to it, is doubtless business-like farming that will count. There seems to be room along several lines for improvement. Among these are drainage of which this paper is not intended to treat; fertilizers, which include leguminous plants, stable manure, commercial fertilizers, and rotation; pasture grass, and live stock improvement and feeding. I do not wish to discuss the question of commercial fertilizers or of rotation, but to give you a few thoughts in regard to the leguminous plants best adapted to the soil of Ohio, stable manure, pastures and live stock.

The legumes are given first place because of their importance. Among these can be found plants that are adapted to all conditions of cultivable land. Three divisions and a plant adapted to each will be spoken of.

It is often said that such and such a place or a certain section of the country is too poor to grow weeds. This is scarcely ever meant literally. Happily all such land can be brought up to a good state of fertility by the use of sweet clover, a biennial plant much prized by those who know its true value. Ignorance and prejudice have kept this valuable plant from occupying the place it deserves. The greatest achievement this plant has ever attained to the writer's knowledge is in a township in Illinois where it is much prized by the honey producer, and where it is cut for hay and relished by cattle. It is also mown along the roadsides and placed in the center for a road bed, keeping all dust down and the road free from mud.

The best plant known for improving average land being red clover, it will be my next topic. Perhaps you will hear nothing new, but it is sometimes a good plan to freshen the memory. According to Bulletin No. 80, of the Ohio Agricultural Experiment Station, a ton of clover hay carries fertilizing constituents to the value of more than eight dollars, as compared with prices at which mixed fertilizers are sold in Ohio; assuming that these constituents are equally available with those in mixed fertilizers, is it not vastly more essential to grow a plant like this and feed it out on the place and be thrice benefited through the feeding value, the fertilizers and the root growth? This brings up the question, how can we get a good stand of clover? I know of no plan that will succeed always. On thing is noticeable of it in connection with a good stand of wheat, unless we get rain about the time the wheat is taken off the clover will die. The solution seems to lie in seeding to clover alone or in a thin nurse crop. Good seed is one of the first essentials to success. If a good crop of clean, plump seed is once secured it is a good plan to keep it as long as there will be a probable need of it. Clover seed properly kept will be good eight years or longer. A clean, airtight barrel, filled and headed up tight, kept in a dry place, answers the purpose best. Keep it, then when some is needed you will not have to take someone's foul seed at a fabulous price. Clover hay together with the seed is about the best paying crop for the farmer. Experience seems to teach that the better plan is to secure good seed, and seed to clover alone in wheat, then keep it clipped as often as it begins to head out. The mulch resulting from this clipping will often save the young plant from freezing out on wet land whereas if left unmulched or pastured off, it will winterkill much more easily. The land when plowed will be lively and full of humus and there will be no need of so many tools to lie around as dead capital. Now that the lengthening of the tongue of the honey-bee and the selection of seed from the shortest corolla bearing, common red clover is being discussed by our leading apiculturists for the benefit of the honey producer, and the fact that clover seed is in good demand for the valuable oil it contains, there seems to be a bright future for the small farmer who can manage a few bees successfully, thereby increasing his income and supplying himself and family with the most wholesome sweet known.

The third division of my subject is on a less familiar line and concerns alfalfa or lucerne. If alfalfa can be successfully grown in Ohio, it will fill a long felt want by furnishing much more feed from an acre, and we will be better able to compete with the great west. Most trials have resulted in failure, however, so far, but our advanced thinkers are still experimenting and some are succeeding. The writer's experience is limited to one sowing, resulting in the conviction that the plant is very valuable and will prove a blessing to those who will prepare their land properly for it and give it the attention required. According to a recent experiment made in Kansas, the value of alfalfa hay, fed with corn to fattening hogs, was a little more than thirty dollars per ton. Comparatively speaking, common red clover hay should be worth twenty-seven dollars, fed under the same conditions. Improvement means the feeding of more clover to all kinds of stock at all seasons of the year. The most complete food known is alfalfa hay, the next is common clover. It may not be generally known that a ton of alfalfa hay is worth about as much as a ton of wheat bran.

The subject of stable manure deserves more attention than it generally receives. Many writers and a host of farmers advocate hauling it out and spreading it in the winter time when sledding is good and work is slack. The result is that money is lost instead of being saved by this pennywise operation. Others advocate hauling it to the fields as fast as made, during all seasons of the year, resulting in a very great loss when spread on frozen ground; however this plan is better than to burn it up in the heap. A ton of stable manure is estimated to be worth one dollar and ninety cents, the loss from fire fanging is estimated at one dollar and twenty cents leaving only seventy cents as the value of a ton of neglected manure.

Now a few thoughts on pasture and grass. If, as was shown by one of the papers at this winter's state institute, only one dollar in gain was made per month by steers on pasture, there certainly is much improvement needed in the handling of our live stock while on pasture, and much attention should be paid to the pasture fields and the kind of grass therein. The amount of grass secured from permanent sods can be greatly increased by allowing certain pieces to rest and recuperate, also by allowing some to grow up late in the season for early spring use. June grass occupies first place in this section, but it has a close rival in the blue stem or Kentucky blue grass. This grass is superior to all others in many ways; one is its tenacity of life, another, that it will form a better sod on thin clay land, and it is always green and palatable, lasting all winter when allowed to stand, and if mown it will make the heaviest hay, and butter made from it needs no coloring. Judging from tests made, we of central Ohio seem to get very little from our pasture fields principally for the reason that every kind of stock is allowed to run on the one and only pasture field on the farm.

Live stock improvement deserves as much attention as any other branch of our work. We of Delaware County are indeed fortunate since we can boast of as good live stock right in our midst as can be found anywhere. Unfortunately much damage has been done by indiscriminate crossing of the dairy and beef types. Very much more attention should be given the selection and breeding qualities of all lines of stock. Experience is the best teacher, therefore we must learn to be close observers and never spare the knife when needed. Judging stock should be made a part of the institute work and county fairs.

A vast improvement in the manner of caring for and feeding the calves is needed, judging by the looks of much of the young stock. This being an age of specialties, the dairyman and stock grower should pursue different paths, with the result that the one would stop starving his calves and the other stop selling bad butter. The ultimate end would be that prices and quality would both be better and each class happier. Herein lies the proof that the skill and good judgment obtained by hard study counts, for is it not an undisputable fact that better horses than the world ever knew, better beef than the world ever ate, better wool than the world ever wore, and better pork than was ever dreamed of forty years ago is now produced right here in America? I might almost say right here in Delaware County. Even the best butter and cheese comes from Ohio, showing the results of education along each branch.

In conclusion, let us put our shoulders, to the wheel of progress and do all we can to forward the good work along educational lines whereby our youth will be lifted up and realize that the profession of farming is one than which none is more truly honorable, elevating and ennobling. Then the world at large will look up to the grandest country on earth and the American farmer on top.

HOW TO CONDUCT A FARM PROFITABLY.

By B. W. HAVENS, Galena, O.

[Read at the Farmers' Institute held at Sunbury, Delaware County, February 22 and 23, 1901.]

It has been tritely said that to begin with an excuse is but a sly way of bragging, but it is in no boastful spirit that I assure you, with what diffidence I undertake to discuss this subject before the successful farmers of a prosperous community; those who have made their farms more profitable than I, perhaps two to one. But if such will bear with me patiently I will direct my thoughts to the boys and young men who are looking forward to the profitable management of farms, who stand where I did twenty years ago, and perhaps some of the things I have found profitable will give them ideas on which to work.

As the main factor in profitable farming is the farmer himself, his qualifications must be considered. Now, do not be a farmer because you have to, because you do not know how to do anything else, or because it is an honest way to make a hard living; but be a farmer because you want to, because it is the calling of your choice, a pleasant and profitable occupation; and have confidence in it, and confidence in your farm, and confidence in your own ability to work the farm, not the conceited kind that boasts of the great wonders he has done or is going to do, but one to keep your conceit to yourself and when you are alone in the barn put your thumbs in the armholes of your vest, straighten back and say: "I am a farmer. I will be the best farmer I know how or can find out."

In order to be that kind of a farmer there must be preparation, so do not be in too big a hurry to get at it, but wait to get all the education you can, not so much for what you learn in a general education, as to develop the intellect, broaden the mind and enlarge the reasoning faculties that you may be able to grasp and solve any problem that may arise, for you will meet plenty of them, far harder of solution than you ever found in algebra or geometry, but if you are prepared to solve them each one will be a step toward success. Beside this get an agricultural education that you may understand the underlying principles of farming and thus save much blind blundering experiment. If possible take an agricultural course at the State University; but if this is denied, get at least part of it by study at home. A book that helped me the most of anything in this line was "Science in Farming," by R. S. Thompson. It did not try to avoid scientific terms, but made them so plain they could be understood wherever found. Much in the agricultural papers is useful for the same purpose; master all the scientific points in the feeders' corner, and on fertilizers, on plant growth, etc. Do not casually read such things but study them the same as you would any other text book. And do this while you are young, fresh from school, and in the habit of studying. After you have passed the age of about thirty it is with difficulty that you can grasp new ideas and absorb them so as to make them a part of your very self.

Form the habit while young of putting into your study, into your work or whatever you do, energy and push. This is an age of push; the Americans are a pushing people, and we must push too if we would keep up with the procession. My brother, who has run a Kansas cattle ranch for twenty years, recently said to me, "I tell you if a man is going to make anything he has just got to 'rustle'." Plan for large things and then put into those plans the energy and push that will carry them out. But on the other hand do not go beyond your ability. "For this I say—to every man—not to think of himself more highly than he ought to think; but to think soberly, according as God hath dealt to every man the measure of faith." The late A. L. Crosby once said, "Some men have a ten-cow capacity and some have a fifty-cow capacity, but the ten-cow men are largely in the majority." While this is true, try to rise above the ten-cow mark even if you do not reach to the fifty-cow men. Rise above the average. Do not be content just to make a living.

When I began to carry on business alone after a ten years' partnership with my father, which I realize was a good schooling for me, I went into dairying and planned for a gross income of one thousand dollars, the expenses not to exceed five hundred dollars. The first part was not difficult to reach, but the last was much harder, and it has bothered me ever since to keep down the expenses without curtailing the income; so I have to plan for a seeming large product to sell, and study the cost carefully, but this is one of the problems which tries the mathematical skill of every one who carries on business.

Because I am a dairyman is no reason why others should be, but because I am, I will direct your thoughts along that line and you can apply them to other branches of farming. We will usually do best with the work we like, if the environments are equal, but when the mountain would not come to Mahomet, Mahomet had to go to the mountain; so if you can not adapt your farm to your tastes and likings, perhaps you can adapt yourself to the farm. When a boy I was afraid of hogs, and never liked them, and raised but few till I went to dairying, when I found I must have pigs to utilize the by-products, and when I saw the money they brought in I found I liked hogs pretty well after all.

Whatever you do stick to it year after year, so you may take the flow of the tide as well as the ebb. And also, stick to your farm, for there is plenty of room on it for you to expend all your energies and intelligence at a good profit. A job of road work or of some other work, or agency for some patent device may be a chance to make a dollar, but you would lose two dollars at home at the same time, and a public office is a detriment to any good farmer.

When Thomas F. Joy was Master of the Delaware County Grange, over twenty years ago, I heard him say: "One teaching of the Grange is for farmers to sell more on the hoof and in the fleece and less in the bushel; to sell more finished product and less raw material." I was young then and it made a lasting impression, and I have found it a safe rule to follow, although I would not condemn those who do differently. An extensive and successful farmer of Franklin County recently said to me as he was returning from marketing his hay in Columbus, that he had been in the hay business for seventeen years, hauling it to the city every year; it had paid him well and as yet he saw no deterioration of his farm and was using only a little fertilizer in seeding and keeping a little stock to eat the waste products he could not sell. But I would not dare to follow such a course myself; I feed all the roughage and corn I can raise and buy several hundred dollars worth of mill feed every year and still my farm does not get too rich.

I have found it was profitable for me to keep cows, first because I like cows, like to work with them and like to make the butter; second, they yield a steady income which can be relied upon through wet or dry, heat or cold, if properly cared for. The proper care I consider shelter from storm and cold, by day as well as night, from extreme heat and flies; plenty of fresh water, and a well balanced ration, including some suculent food. In the summer this is good pasture grass supplemented in dry weather by clover, sweet corn, or other forage crops. In winter corn ensilage and clover hay balanced up with bran, gluten and cotton-seed meal. I plan to raise all my rough feed and corn and buy only such feeds as are rich in proteins to balance the carbonaceous corn, and this balancing is very essential to successful stock feeding, for unless the food elements are furnished in the proper proportion the desired results will not be attained to the fullest extent; and as they can be used only in this proportion, otherwise a part of the feed will be wasted.

On account of bringing too much work into the house I have not increased my dairy as much as I might otherwise have done, but I have found it pays well to keep a cow or too, that on account of being a hard milker, or for some other cause, is not desirable in the dairy, to veal the calves not wanted to keep. Also it pays to raise the best of the heifers to replenish the dairy, and to sell to the neighbors if not wanted at home.

One of the benefits of stock farming is the fertility saved on the farm, and the best and cheapest way I have found to save it, where bedding is plenty, is to allow the cattle to run loose in the stable after feeding and milking; bed heavily every day and clean out once a month or as often as necessary and haul direct to the field. In this way I use up straw, corn stalks, saw dust, shavings, leaves, and even road dust; anything almost that will make an absorbent. And it gives the cattle the greatest amount of freedom and comfort.

I do not keep many hogs, only enough to use up the waste products of the house, dairy, orchard, garden and of the farm in general. I keep them in the orchard and lots around the barn, and besides these waste products and the grass they pick, feed them dry corn and skim milk, and I consider them a poor lot of pigs if they do not weigh two hundred pounds at six months old. I try to have a bunch of eight or ten such young hogs to turn off four times a year; March, June, September and December, and I find they pay pretty well.

Another thing that has paid us well is the chicken business, not fancy poultry, but just good common Plymouth Rocks, but as my wife has charge of that part of the business I do not know much about it, but only know they are good to pick up what would otherwise go to waste and pay well for the feed given them.

In order to grow all the feed possible for as much stock as possible, I have adopted the three years' rotation; corn, wheat and clover, which has the following advantages: a good clover sod to plow under goes far toward insuring a good corn crop, and then this corn stubble, filled with decaying clover roots, well prepared in the fall makes a good seed bed for wheat, only needing a little fertilizer to furnish available plant food to start the plants in the fall, and seeding the next spring with clover and a little timothy we are furnished with the cheapest fertilizer to be had and the best stock feed that can be put in the barn, and no ground is left bare to waste fertility. And this rotation I try not to vary much that I may have approximately the same amount of corn, hay, and straw each year. I experimented somewhat in trying to leave out the wheat and raise instead something to feed on the farm, but have given it up as unsatisfactory.

These crops need well drained land, and it is profitable to tile drain where needed. The farm should be arranged so as to have the cultivated fields together as much as possible, remove the fences and never pasture them. I have about half of my farm in this rotation, and the balance in permanent pasture.

Dr. Thompson said at the Rome fair a year ago, that when a boy in his father's home they raised and made on the farm all they ate and wore. That was making the farm a source of supply more than is now practical or wise, but I believe in the same principle modified to suit the times, and I think the tendency is for the pendulum to swing too far the other way. I believe the farm can profitably furnish us the best of living in such things as are adapted to it, and save the cost of handling, transportation and several profits besides having a better quality. Especially is this true of flour and meal, fruits and vegetables, and meats for all the year around except an occasional steak or roast for change in warm weather.

It is also profitable to look after the little odds and ends of the farm, although they may not amount to much, at the end of the year they will aggregate quite a nice sum. In supplying for your own family there is frequently something left over that somebody will want, and to find the right one you will usually realize enough to pay well for your trouble. This is most noticeable of fruit as that is so variable an abundance must be raised in order to have enough.

Waldo F. Brown says in his "Success in Farming": "The farmer who attempts to do all his farm work and care for his stock will have no time or heart for anything else," and, "No one can hope to acquire much property simply by his own manual labor. It is only as he has the capacity to employ and direct the labor of others that he can expect to realize a competency." I found long ago that there was too much on the farm for one to do, and as it will not pay to leave it undone, I hire a great deal of work done. It pays me to keep one man all the time, the year around, and in ditching, haying, filling silo, and such work I hire extra help by the day. Husking corn, cutting wood, and wherever else I can, I hire by the job, which is most satisfactory for both sides. When I came into possession of my farm there were two houses on it, so for regular help I employ a married man who boards himself which is pleasant for both of us; and by not having many hands to board, having some work done away from home, and planning to keep extra work out of the house, we have never had much help in the house, so that is a problem we have never yet solved.

In all business transactions of the farm I find it pays to keep accounts, nothing elaborate, but a detailed account of income and expenditure, that we may know what our income is and where it comes from, what pays best, what the expenses of the business are, and where they can be reduced without detriment; to see how much it costs to live and how to economize in some of the extravagances; to see how prices this year compare with last year and five years ago. But there is one profit of the farm that can not be reckoned from the accounts, nor computed in dollars and cents, and that is the advantages of a good country home, free from much of the evil influences which surround a home in the city. Although we may not receive the polish noticeable where a constant contact with our fellows have worn off the rough edges, we have the independence and freedom sought by all. With the daily mail, telephone connection, and good roads, all of which are almost in sight, where not yet attained, the country is robbed of its isolation and loneliness, and is not a bad place in which to live.

THE IDEAL FARMER.

By O. B. **Ransom**, Sandusky, O.

[Read at the Farmers' Institute held at Castalia, Erie County, January 21 and 22, 1901.]

All of us are familiar with the lines from Longfellow's "Psalm of Life";

> "Lives of great men all remind us
> We can make our lives sublime,
> And, departing, leave behind us
> Footprints on the sands of time."

What constitutes a great man? Is that man great, who solely by reason of a vain ambition, has seemingly risen above his fellow men, and is trying to retain his hold on the top round of the "Ladder of Fame?" No. Such as he must inevitably fall from his high estate. Immortality of fame must surely be smothered out by a selfish ambition. Only he, who thoroughly loves God and man and their doings, can be truly great. Only he, who labors honestly and earnestly for the good of mankind, and who succeeds in leaving the world a little better than it was, can hope to attain to immortal fame.

Surely such a man is the ideal farmer. The term "ideal," as applied to the farmer, means fully as much as when used with reference to men of other professions. We often hear the remark that Mr. A is an ideal preacher, doctor or merchant as the case may be; but seldom that Mr. B is an ideal farmer. Why is it thus? Is it because there can be no ideal in farming? No. There can just as well be ideals in farming as in other callings. More than that, there are, today, many men who follow agriculture as a profession who are equally eligible with the best of men to a place in the van.

If there is to be an ideal farmer, there must of necessity be an ideal farm. What constitutes an ideal farm? Where will we find one? There can be no better way of finding out what goes to make up an ideal farm, than to visit one and see for ourselves. However hard to find, the ideal farm is not quite as scarce as the proverbial "chickens' teeth." To gain the desired information, let us take a drive through the country, and keep our eyes open in quest of a place, which we think is justly entitled to be called ideal.

As we jog leisurely along, we view many farms and each of different make up, and fall to musing thus. "For what are we looking? Are we expecting to find our ideal in the farm, which we are now passing? Let us describe it and see."

Fences down, fields overgrown with weeds, buildings dilapidated, stock running at large and the owner a man whose garments would pass muster for a tramp's and whose countenance is strongly suggestive of indolence and discontent, sitting lazily under a tree at the end of what is supposed to be a corn field.

Do we expect these premises and this man to be "ideals?" However, as we are out for information, we interrogate him as to his prospects and why things are looking so at odds and ends. Leisurely rising, turning around, shifting a large quid of tobacco in his mouth and spitting over the fourth row of corn, he says: "Well, everything is going to the dogs anyway and so it's no use to try to do any better." We ask him to direct us to a more promising farm, one that might be called "ideal." "Ideal farm, did you say? Well, I hardly know what you mean; but, if you are looking for a place, the owner of which prides himself on its appearance and general make up just drive on a mile or so and see for yourselves. Mr. So and So lives there, and has a good time, too, while I have to work hard for my living. He is one of those lucky fellows anyway, and so can afford to have things in better shape than myself."

We surmise that what Mr. Shiftless, for, of course, that is his name, has laid to luck should be rightfully attributed to honest and conscientious effort, and ask him if such is not the case.

"Well, Stranger, maybe you are right, but I can't see the use of farming anyway, and am going to give up in disgust." No wonder! And we too are disgusted with such surroundings, and drive on as directed resolving to forget what we have seen and heard.

Presently we come to a place where we can see, drawn in indelible letters, on house and barn, on the fields of waving corn and ripening wheat, on the stock in the pasture and the team in the harvest field, and in short, wherever our eyes may roam, these words—"Thrift, prosperity, contentment."

Resolved to see more of this place, we drive into the yard and despite our promise to forget Mr. Shiftless and his farm, we can not help but note the contrast and exclaim, "Marvellous!" We see the owner coming down the walk, and behold a man clad in neat, but inexpensive attire. There is no slouch about his gait, no tobacco stains about his mouth, and none of that "devil may care" expression so vividly depicted upon the face of Mr. Shiftless. He bids us welcome and spares no pains to show us everything of interest about the place. His buildings are noted, not so much for their great size, as for the convenience of their external and internal arrangement. There are no loose boards or doors banging in the wind, no rubbish pile about the buildings and all about the premises the same order and neatness prevail. The fences are in good repair, the fields tidy in appearance and regular in shape, the stock well cared for, the farm implements in good shape and everything is as would be found on the premises of the wide awake, up-to-date business farmer.

Wishing him still further success, we drive home feeling satisfied that we have seen at least one ideal farm.

Now for the ideal farmer. While the owner of an ideal farm must of necessity be a thoroughly good farmer, it is by no means a foregone conclusion that he is an "ideal."

A man may conduct his farm ever so well, and be prosperous and all that, but he has many other duties to perform, before he can hope to be ideal in the fullest sense of the word.

In the first place there is his employe. He needs must hire none but men of good morals, capable and willing to do an honest days work, kind and gentle to the farm animals, in short as near a model as is possible to find. (A scarce article to be sure.) Employing none but good men, he pays them good wages, treats them well and gets value received.

The ideal farmer does not ignore his neighbors. He visits them often and above all things else, at suitable times, no matter if he has a neighbor who visits him in the "wee sma'" hours of the morning and, by mistake, of course, gets into the chicken coop. If he be so unfortunate as to possess a night hawk for a neighbor, he must try to reform him and thus score one "for humanity," and it is not always necessary to sight along the rifle barrel to do it either. He should advise his neighbors, and if he has valuable pointers about farmwork he must impart them to those in need. In short, his whole conduct towards his neighbors should be on the golden rule plan, "Do as you would be done by."

The ideal farmer has many duties to perform to himself. He should not be above working about the farm whenever it is necessary, doing whatever he can without detriment to his health. It is not necessary for him to put in sixteen to eighteen hours daily, as is too often the case with the average farmer. Remembering that he is a model for others to copy, he must be very careful in this respect. By putting in fewer hours on the "work while you work" plan, actually doing as much in ten to twelve hours as some of his neighbors do in eighteen, he is enabled to have more time for rest and recreation. At fifty years of age, you will find him just as well off financially and far better off physically than the average farmer.

The ideal farmer takes his recreation in suitable amounts and at suitable times. He would hardly be found at the sea shore in harvest time, or at the circus when there is a meeting of his grange.

Whatever else he may do, wherever else he may go, to whatever other order he may belong, you will find him a member of, attending and working in that grandest of all organizations—the grange. Surely he will bring no discredit upon himself or his family, if he but live up to the principles, fulfill the obligations and obey the injunctions of that noble order. In the grange he will be found at his best, for if he is an ideal farmer he must be an ideal granger. Here he will be found discussing those questions pertaining not only to farm life, but to the many phases of human existence. Here he will be found working out those plans which must inevitably benefit himself and his fellow men.

The ideal farmer should be able to command the respect of other people. He should so deport himself, as to personal appearance and action, and expression of countenance, as to forever dispel from the minds of even the most refined of persons any fears which they might hold as to his character and qualifications. He should have an honest, genial, frank face; be able to look people in the eye, and extend the right hand in a hearty whole-souled grasp. If he has burdens, he should shoulder them manfully, instead of dragging them along the ground, stumbling blocks not only for himself, but for others. His manner of dress should be in keeping with his work or his recreation. One would not expect to find him at church clad in overalls, or at work about the farm in a Prince Albert coat.

How does the ideal farmer pass his Sundays? For he must remember, "Six days shalt thou labor, on the seventh thou shalt rest." While he is justified in doing certain work on the Sabbath, such as chores, etc., it is seldom necessary for him to perform other labor on that day.

While it is not absolutely necessary that he be one of the pillars of the church, surely no harm can come to him by being an active church worker. The ideal farmer is not the man, who, in order to attend church, hitches up the only rig on the place, leaving the rest of the family at home. He is not the man who hopes to derive any spiritual good by attending church, if he drives the team that has worked all week in the plow. For he remembers that the fourth commandment applies with equal force to himself ana the motive power of his farm, be it horses or oxen.

For himself and his family he provides suitable conveyances, drawn by horses that have had at least one day of rest in seven. Neither does he leave his team standing in the hot sun of summer and the chill blasts of winter without proper protection, while he is comfortably seated in a pew listening to an eloquent sermon for the edification of his soul.

"A merciful man regardeth the life of his beast."

The religion of the ideal farmer must not be a cloak to put on and off at his convenience. He can not expect, by paying for and occupying the best seat in church on Sunday and cheating his neighbor on Monday to attain anything but hypocrisy. "It is better that man should know you as a sinner than that God should know you as a hypocrite."

What is the relation of the ideal farmer to his country? To her he owes a great duty. He should be ever ready to do all in his power to better her condition; ever ready to take up his pen in defense of her principles and, if need be, to lay down his life in defense of her rights. However, there are many ways in which he can be of greater service to his country than to shoulder a musket and march out to shoot down his fellow men for the cause of humanity.

His first duty is to register at the ballot box his true principles and the convictions of an unperverted conscience. It is as much his duty to take an active interest in the political affairs of his country, as it is to provide the necessaries of life for his family. For his country and his home are inseparable and that which affects the former surely affects the latter. In no way can he accomplish greater results than those that lie within his power right near his own door. Take, for instance, township boards of education. How often are they composed largely of men grossly unfitted to attend to the educational affairs of our children? How often are these men chosen because of some qualification to pull the wires rather than to work for the best interests of the schools? Take it all along the lines of public officials, is it not the case that a dangerous proportion of them are almost entirely unfit to occupy the positions to which they have been elected? And it will be ever thus, until the farmer awakens to a full realization of the facts and acts accordingly. While the ideal farmer should not make politics his life business, as too many men do to their own detriment, he should not hesitate to take upon himself the duties of "political mariner," and help to steer clear of rocks and shoals, the grand old "ship of state."

Last, but by no means least, comes his duty to his family. In the first place, there is his wife, for the home of the ideal farmer is not complete without some one to direct its internal affairs, and make it all that it should be, As one writer has expressed: "Man can build the house, but it's woman makes the home."

The head of the family should provide all the necessaries and conveniences which his circumstances will permit; and if he put himself to the test, he will find that they permit more than is usually found in the home of the average farmer. As an ideal farmer, he, of course, has an ideal farmer's wife, else all his care and provision count for naught. Having made her his partner in life, so also, should he make her his partner in business. And if he carry his portion of the load of domestic affairs, he may rest assured that she will carry hers. The ideal farmer performs, with great zeal all his duties to his children; and by the aid of a good wife, rears them in the paths of duty, usefulness and virtue, and fills their lives with happiness. He provides good, wholesome reading matter for his children and gives them, that grandest of all rights, a good education. He surrounds them with all the comforts and pleasures that lie within his power, not forgetting to exact from them their hearty cooperation in all the matters that pertain to the home and family. The conduct of the ideal farmer, toward his whole family must be such as to command their respect, admiration, confidence and that which is vastly of more importance their everlasting love.

Thus we have traced the ideal farmer through the list of relations and duties and we can not help but realize that he is really and truly a great man.

When will the farmer have risen to his proper position? When will he have been accorded just distinction? When will he have made his mark in the world, and have left in fact, "foot-prints on the sands of time?"

In conclusion, it may be said that, when the farmer shall have done his duty to his farm and to himself, to his farm animals and to his fellow-men; when he shall have done his duty to his church and to his state; when he shall have done his duty to his family, and shall have surrounded his wife with all the comforts due her station and her sex and shall have reared his son and daughter from innocent childhood to virtuous and noble manhood and womanhood; then will he have justly earned the title "ideal." Then will he have been accorded his proper place in the foremost ranks of great men. Then will have appeared upon the very walls of the "Temple of Fame," engraved in letters of gold, side by side with the names of the great merchant and manufacturer, the great statesman and general, the great philanthropist and preacher, the name of the "Ideal Farmer."

BUTTER MAKING.

By Mrs. W. H. O. Goist, Girard, O.

[Read at the Farmers' Institute held at Howland, Trumbull County, February 25 and 26, 1901.]

This subject is a very important one, for the making of good butter requires more skill than any other task the farmer's wife has to perform. If we want to make perfect butter we must make an article that will score 100 points. This is the way the score card reads: Flavor, 40; grain, 30; salt, 10; color, 15; package, 5; total, 100. Thus you see flavor is the most essential, and if we want the flavor of our butter just right we do not want husbands that are not interested in butter making, for it is not the wives alone that make the butter, but we do want our husbands to be always on the lookout for the care and feed of the cows. If the good man sits on the porch, smokes his pipe and reads his paper while the weeds grow in the pasture and the water in the pond becomes stagnant, the storm blows trees down and the cows eat the leaves, the good clover hay gets wet and musty before it is stored in the barn and the corn fodder moldy and spoiled, how can his wife make perfect butter? The feed must be all good, the cow and the stable must be kept clean, the milk and cream must be taken care of just right and the cow must be of the right kind, to have the flavor perfect.

The next is the grain; to have this right we must have the cream just the right temperature both before and while churning. It should be churned in a churn which contains no internal fixtures, for paddles or dashers break the grain; the butter should be washed with cold water and the particles of butter should be kept about the size of a wheat kernel until salted. Then it must be worked just so much and no more, and I scarcely can tell just how much that should be. Experience must be each woman's teacher. Too much working is injurious and too little is almost as bad. The proper working of butter is an important matter, and it is the butter maker who gets it nearest right that secures the highest score as to grain.

Next comes salt; the expert judge wants about one and one-half ounces of salt to the pound; if you use less it will be marked lacking. The salt must be the best. No barrel salt should be used for number one butter.

Now comes color; if you should put it before the expert judge in the winter it would have to possess the beautiful June tint to score high or draw a prize. All of the butter that drew prizes at the Ohio Dairymen's Association Dairy Exhibit last winter looked like summer butter, I have been told.

Packing only counts five points but it has to be all O. K. to make the one hundred points. The standard commercial package is the rectangular block; round prints and rolls are scarcely recognized in any dairy exhibit. The blocks must be wrapped in parchment paper and packed in a butter shipping box. Thus have I told you as near as I know how to make butter score high.

Now I will give you some of the details of butter making in general upon the farm, the best place to make good butter. All of the conditions necessary to the production of a choice article are under the control of the farmer; he can select the proper cows, and when dairymen realize that cows are machines to manufacture milk and cream, they will be selected with great care, for it is presumed that all dairymen are working for profit and not for glory. He can grow a large part of the feed, give his cows sweet, sound, healthful food, shelter them from the storm, keep them clean, and have control of the milk from the time it is drawn until the butter is marketed. In this climate for at least six months in the year the cows are sheltered in a warm and well ventilated stable where they can be kept perfectly clean and comfortable. The ration should be generous and composed of a variety of food. Every want of the cows' nature should be satisfied with proper nourishment.

We think that the Jerseys are the best breed. They consume less feed than any other breed, give a more uniform quantity of milk and produce butter of a golden color. We should study the different ways of creaming milk very carefully, for if by some poor system we are throwing from one-fourth to one-third of the butter fat away in the skim milk, we are robbing ourselves and our cows of the profit they would make. "Well," someone exclaims, "the calves and pigs get it so it isn't wasted." Yes, it is, for you can get about twenty-five cents per pound for butter fat, while oil meal costs but little over one cent per pound, and bran costs less than one cent per pound, and pound for pound when properly fed will do calves and pigs just as much good. There are three different ways of creaming milk, the first and oldest is the shallow-pan system; the next, which is a great improvement over that, is the deep-setting system, and the latest, and by far the most economical and perfect, is the centrifugal system or separator. To get the very best results from the shallow-pan system the room or building in which the milk is kept should be as free from bad odors as possible, for if the milk is kept in the kitchen or living room it will absorb odors which are sure to be objectionable. The air of the creaming room should be kept moist to prevent the surface of the cream from drying as clots of cream will form; these clots will not churn, but will remain in the butter, forming those little white specks which are so troublesome at certain times of the year. Care should also be taken not to have the air too moist, as that would cause mold to form on the cream. If the milk is allowed to stand too long, one is liable to get parts of the curd in the cream. This will also form clots or white specks in the butter; it can be avoided by straining the cream through a common sieve, which will break up the clots of cream, and remove the pieces of curd.

In the deep-setting system the cans are set in as cold water as possible; immediate setting and a low temperature are the things most desired for the best results; the temperature must be kept down below 50 degrees at all times to secure anything like satisfactory results. If this temperature can not be obtained ice must be used and enough to keep the temperature down below 50 degrees after the heat is all taken out of the milk. I have used cans in running spring water, and I know that I can skim just as close this way as any other. The reason we objected to this system was that it made too much work, especially in the winter. Our spring has a shallow stone trough and we set the milk in three gallon tin cans and dipped the cream, and sometimes we had rather cold fingers before it was all cared for. I have seen milk put in creamery cans and hung in a well with good results.

To secure the best results from the separator, the speed should be kept up to that recommended by the manufacturer and the temperature of the milk be at least 90 degrees. The best results are obtained as a rule in separating the milk as soon as it is drawn, but good work can be done by warming it up to 90 degrees. One great advantage with the separator is that you can have the thickness of the cream just as you want it. Another advantage is the cleanliness of the cream, as it contains no dirt whatever; any dirt that may have been in the milk will either remain in the bowl or run out with the skim milk, but the greater part will remain in the bowl.

These statements being true in regard to the creaming of milk, the shallow-pan system ought never to be considered in the making of first-class butter, because of the very great loss of butter fat which can not be avoided, and the sour condition of the cream when it is taken from the milk. I do not mean to say that it is impossible to make good butter with a dasher churn and the shallow-pan system, but the impression I would like to give is this, that if you want to make butter in the most economical manner they are things of the past and should not be considered at the present time.

Where one has spring water with a temperature below 50 degrees in the summer season, or can supply enough ice to keep the temperature down, and the spring or creamery is in a convenient place, so as not to make too much work for the dairy-maids, the deep-setting system is all right, but when fifteen or twenty cows are kept the separator is to be recommended for the farmer's wife needs some time for her family, herself and home duties. I think with the separator I can make butter one-half easier than I did down at the spring house, for there was so much milk to carry, so many cans to wash and scald, and so much cream to dip every night and morning.

Now during the warm weather as soon as the milk is separated it is set in the water in the springhouse, for separator cream should be cooled as soon as possible and kept at a temperature below 50 degrees until enough has collected for a churning; the object of this is to solidify the butter fat, so that the butter will be hard and have grain, and to keep the cream from changing until enough has been collected for a churning, when it should be ripened together. Butter can be made from sweet cream, but it lacks flavor. To ripen cream we can be governed by no one given rule, for the atmosphere and the temperature of the milk room have much to do with it. We have to use our best judgment, and study the conditions of the surroundings very carefully and be governed more by common sense than by rules. To ripen cream in the winter is a far more difficult task than in the summer. The temperature should be slowly raised to 65 or 70 degrees and held there if possible. To do this set the cream can in a vat of rather hot water and stir the cream constantly until the right temperature is obtained. To this cream a starter should be added. Commercial starter, I suppose, is the best, fresh buttermilk gives very good results, so does starter made from fresh milk. The latter is made by taking fresh skim milk free from taint, raising its temperature to 90 degrees and setting it away in a warm place for 24 hours, when it will have a jelly like consistency. This should be used at the rate of one part starter to thirty parts cream, straining it through a strainer and stirring it well through the cream; this will hasten the process of ripening, and as a rule will improve the flavor of the butter. When the temperature of cream is raised to 70 degrees and a starter used, it should be ready to churn in twelve hours. The temperature of the cream at churning should be from 66 to 68 degrees, and the temperature of the water in which it is washed from 62 to 64 degrees, and when the temperature out of doors is 20 degrees below zero and I have a large churning I want the temperature of the kitchen about as high as I can get it.

In warm weather I mix the cream all even the evening before churning; that is, I try to have the cream of different ages all mixed so that it is just alike, then I leave it on the cement floor of the springhouse until morning, when it is usually ready for churning. I think cream to churn should have a somewhat sour taste and a thick glossy appearance. The churning should be done at as low a temperature as possible and have the butter come in from one-half hour to one hour, as this will insure close churning and firm butter. If the churning is done in less than half an hour there is sure to be a great loss of butter fat. In very warm weather I churn at from 60 degrees to 62 degrees, but this rule would not do for all, as different herds may require different temperatures.

I use a rectangular churn and like it very well, but there are many other churns that do good work. If a little cold water or, better still, cold brine is added just as the butter breaks, it will make it separate better. The churn should stop when the particles of butter are about the size of a wheat kernel. The buttermilk should then be drawn off, using a strainer to catch the particles of butter that may chance to come away with the buttermilk. After allowing it to drain for a moment about three or four times as much cold water as there is butter should be added and the churn revolved a few times; the water should then be drawn off, using the strainer as before and allowing the butter to drain quite thoroughly, then more water added letting it stand in this water for about twenty minutes. This, I think, makes it more solid. When this water is drawn off it is ready for salting. If your family is to eat the butter salt it to suit your taste, for then one person will be surely suited. The salt should be cold having been in a cold place some hours before using. Scatter the salt over the granules as evenly as possible and turning the churn back and forth to move the butter enough to get the salt through it, then put on the cover and revolve the churn until the butter is in chunks. It should then drain for about twenty minutes, but if the temperature is one hundred degrees in the shade out of doors it would be better to put a pail of cold water over the chunks to keep them solid until all is worked or cared for. When butter is worked in a bowl with a ladle, extreme care must be used not to spoil the grain of the butter. Never under any circumstances draw the ladle over the surface of the butter.

After the butter has been cared for it should be kept cold until marketed. I make the most of mine in five-pound rolls and use a butter bowl and ladle. In winter I mark the rolls as soon as made with a corrugated butter ladle, in summer not for some hours after. I think it is probable that the time is not far distant when all dairy butter to give satisfaction will have to be marketed in one-pound blocks, nicely wrapped in parchment paper. During the warm weather, to keep my butter solid and have it in good condition to market, I keep it in a tank in the spring house; this tank stands in the water and makes a very good butter cooler. Butter should always be packed as neatly as possible, delivered promptly, and at least once a week, for it is true that good butter increases the demand and demand is the soul of the market.

In closing I would say, to make good butter on the farm, of good quality and in an economical manner, it is necessary to have cows of a distinctive dairy type, a Babcock milk tester, a cooling vat of some device, a creamery or separator, a good churn, a dairy thermometer, a pair of scales, a good scrubbing brush and plenty of sand paper.

A PROBLEM IN BUTTER.

By Mrs. Mary A. Vale, New Carlisle, O.

[Read at the Farmers' Institute held at New Carlisle, Clark County, February 6 and 7, 1901.]

Our lives are filled with problems. From our infancy, when we first essay the difficult problem of learning to balance ourselves properly, and to walk without the numerous falls which are common to such infantile efforts, on through our childhood and youthful days when more important questions face us to be solved, until, more advanced in life, they continue to arise before us in seemingly as endless array as the old arithmetical and geometrical problems of our school days and equally puzzling in solution. The farmer's wife certainly has her full share of them. There is probably no other occupation where so much depends upon the wife in the home, and where the responsibility is greater. In addition to the innumerable duties of the general housekeeper, she must be thoroughly acquainted with the secrets of poultry raising and dairying and be master of many trades to fill the position creditably. Among the many problems which surround her there is one which should take position in the foremost rank and be given most careful consideration; how, with a given quantity of milk and the poor conveniences at hand, to obtain a good quality of butter for sale and family use. This branch of farm industry committed to her care as housekeeper, is an honorable and ancient one. We can trace the use of butter, almost to the beginning of the history of mankind, for we read in Genesis that when the three angels stood at the door of Abraham's tent on the Plains of Mamre in the heat of the day, he urged them to enter, brought forth butter and milk, bread and the flesh of a calf and set it before them that they might refresh themselves. The primitive method of churning followed by the nomadic tribes of those days consisted in placing the milk or cream in a large leathern bag, which was swung from three poles erected in the form of a cone; the motive power was furnished by two women who pushed the bag back and forth until butter was obtained, a tedious method when compared with the more rapid process which we enjoy in these days by the use of the modern churns.

The butter industry of this country is an important one. It is estimated that the amount of butter consumed annually is about eighteen pounds per capita; it follows that though we may concede bread to be the staff of life, yet most of us want a little butter on it and want that little well flavored, as the constant demand among purchasers for *good* butter shows, although their search for it often seems a striving after the unattainable. In the farmer's home there is often a lack of conveniences for butter-making, which is inexcusable. As the income on the farm is largely increased from the sale of butter, the husband should see that the wife's labors are lightened by labor-saving conveniences.

The methods of handling milk have greatly improved in the last fifty years. The early method of using shallow pans and the dasher churn has been superseded by deep setting and the innumerable patent churns, which promise butter in ten minutes, but, alas! too often disappoint us, as we have learned to our sorrow, when the butter would not come in spite of our perseverance. The different creameries in which the milk placed in cans is submerged in cool water are a great improvement over ordinary methods. The milk is cooled quickly, protected from absorbing odors, and the cream separated in a short time, thus producing butter of a better quality. The latest convenience for the use of the home dairy is the centrifugal separator, but its use is only practicable when a large number of cows are kept for butter-making purposes. It is claimed by those who have used it that the increase in the quantity of cream soon pays for the expense of the separator and the labor of caring for the milk is lightened.

Farmers' wives, however, are not often supplied with these improvements, and we can only consider the methods we have at hand in caring for the milk. If we want to make a specialty of butter, we should keep cows which will furnish the greatest amount of butter for their feed. The milk of the Jerseys and Guernseys is richer in butter globules and hard fats than that of any other breed and produces butter of a more solid texture, consequently these breeds are the very best for the dairy farmer. Cleanliness in every department is very essential; the stables should be kept clean as possible, lest bad odors be absorbed by the milk. The importance of this is obvious when we consider the fact that the milk, as soon as drawn from the cow, is entered by vegetable cells, called bacteria, of several kinds. One form of bacteria has the power to produce acidity, others produce aroma or pleasant flavors, others are those that produce decay and are most disastrous for butter-making purposes. The last variety is not only more numerous than the others, but possesses a greater power of endurance and originates in the manure in the barnyard or hog-pen, or in any decaying matter. These bacteria are wafted by the gentle breezes in myriads to their destination, hence milk should not be allowed to stand in filthy surroundings or be exposed to the air in the neighborhood of such places. The buckets, cans, crocks and strainers should be kept with scrupulous care, washed with warm water and soap, scalded and aired or exposed to the sun; wooden buckets should be avoided, as they can not be kept well cleansed owing to their porous quality. The churn also should have special attention; buttermilk should not be allowed to stand in it for any length of time or until it becomes old, but should be drawn out immediately after churning. The churn should be well scalded; boiling water is a great factor in keeping all utensils sweet when we can not sterilize by steam; it destroys the bacteria which may collect in the corners or seams, and which cannot be removed by careless washing.

Bacteria lie dormant when the milk is kept cold, especially the kind that cause acidity, so the milk should be cooled quickly to prevent their ravages. In setting milk, I have gained the best results by using three-gallon cans set in a trough where the water reaches nearly to the brim, and is kept cool in warm weather by a constant current being pumped by the wind engine (all the water for the live stock at the barn passes through the milk trough); as a consequence I seldom have sour milk, even in hot weather. The trough is on a porch, thus saving the labor of carrying the milk down cellar, as is the general custom. By skimming in twenty-four hours' time, keeping the jars of cream in the water and churning early in the morning in summer, a solid butter is obtained which can be made into rolls.

There is a great difference of opinion as to the length of time milk should stand before skimming, a very good reason for the difference in quality of butter. Milk should not be allowed to become sour before skimming, either in summer or winter, if we would have fine flavored butter, and should never become thick, as the cream thus becomes too old before churning, forms whey, and the product will be strong, with cheesy white flakes throughout it. In winter if milk is kept in a warm place to sour before skimming, it will finally, in sheer bitterness of spirit, succumb, but the butter will have a bitter or rancid flavor. Care in thoroughly stirring the cream each time a fresh quantity is added will assist in keeping it from becoming old and forming whey. Never under any circumstances should sour cream stand in tin vessels; stone jars are best.

A dairy thermometer is indispensable if one has a large amount of cream to handle; it saves many minutes, perhaps hours, at the churn. If the cream is too cold the butter globules will not adhere, and you may churn until you are weary, with no result This is where the perseverance of the saints comes in good play. On the other hand, if the cream is too warm, the butter is a salve, the grain ruined; it will not keep sweet nor become solid with the best of care; it is scalded butter, white and porous. A thermometer assists in bringing the cream to the right temperature before churning, which insures butter of a uniform texture, and saves much labor and worry, a great consideration with overworked housekeepers. The best churning temperature is from 58 to 60 degrees in summer and from 63 to 65 degrees in winter.

The cream should be properly ripened to secure the best yield. In summer sweet cream can be added the night before, in cold weather not for twenty-four hours before churning. In my experience, gained when making from twenty-five to thirty pounds of butter a week, I have found the easiest and safest way in cold weather is to keep the cream sweet and cold until twenty-four hours before churning, then warming it by placing the jars in warm water and stirring constantly until it reaches 75 to 80 degrees temperature, adding a "starter" in the way of a little sour milk; by keeping the cream in a warm room it will become thoroughly ripened by the next day ready for the churn. In this way I avoid the strong flavor which it often acquires by being kept near the stove continually in order to sour it.

When the butter is churned the question arises, Shall we wash it or not? Each method has its followers. That which is not washed may not keep so well, but too much washing may take away the flavor. I prefer washing in one water, first drawing the buttermilk from the churn, then pouring in pure water.

The salting is quite an important factor in good butter. Fine dairy salt in proportion of an ounce or an ounce and a quarter per pound is about right. A sufficient quantity should be used, as it assists in preserving the butter. Many fail with their butter because it is not worked sufficiently. Made up for sale directly from the churn, it contains buttermilk, which gives it a streaked appearance, but if well worked it will be uniform in color with the salt evenly distributed. It should be worked by pressure, not rubbed back and forth until it is of a putty-like, oily appearance, and a wooden paddle should be used, not the hands, as the heat from the latter spoils the grain, to say nothing of other objections which might arise on the score of cleanliness. The bowl and paddle should be well scalded, then cooled in water, so tne butter will not adhere to them.

Finally, the butter should be put in attractive shape for the market. Much depends upon this, especially if it is delivered to private customers. It may be sweet, but if delivered in a careless way, slapped into a crock or dish, without regard to shape and perhaps covered with a bit of old muslin, which plainly shows it was formerly a portion of an old garment, or perhaps a soiled towel, its value is lowered in the purchaser's eye. If made up into neat prints or rolls and wrapped in dainty napkins of linen, kept especially for that purpose, who would refuse to pay an extra price for such a nice appearing article delivered at his door? It pays to take pains with this branch of the work. We need to have pride in it. and to realize that whatever is worth doing at all is worth doing well. The extra care is rewarded by advanced prices and a demand for our product.

The manufactured article called butterine or oleomargarine is becoming a formidable rival in parts of our country. It is now consumed in a proportion of one pound per annum per capita. The Secretary of Agriculture states that one-half the substance used in Washington for butter, is the spurious article. The demand for it is steadily increasing. In the year ending June 1899 the production of oleomargarine in the United States was eighty million, four hundred and ninety-five thousand six hundred and twenty-eight pounds; in the year ending June 1900, one hundred and four million two hundred and sixty-three thousand six hundred and fifty-one pounds, and nearly nine millions pounds of this sold in Ohio. It is said to be manufactured in a cleanly way and keeps sweet, which is more than can be said of some country butter.

Beef suet, carbonate of potash and sheep's stomachs are compounded in a way which produces a substance called stearin. Ten pounds of stearin, four pints of milk and a little water, are the proportions which are used in churning, the result being oleomargarine, which is colored to resemble butter and sold to customers who prefer it to the poor grade of country butter that is found in many places. Some of this manufactured article is sold by its proper name, but much of it is illegally sold under the name of butter. Can it be that the farmers' wives are partly responsible for this state of affairs, because of the poor quality of butter which they make and offer for sale? If the greater percentage of country butter was sweet, there would be less demand for the artificial product, but about one-third of the butter brought to our town groceries is unsalable as such being disposed of at a loss by the grocer to hucksters, or shipped away by the barrel to produce houses, where it is renovated and shipped east. Why is it that so much poor butter is brought to our stores? Why should a customer be obliged to ask. "Have you any *good* butter?" Why should it not *all* be good? Why should the grocer be obliged to take in exchange for groceries a lot of variegated, rancid butter, of all shades from milk white to the bright hue of the autumn pumpkin, butter of Sampson-like strength or soft enough to run if given a fair chance? Is it that the farmers' wives are so careless that they do not realize they are lowering the price of the product by its inferiority? There are women who claim that they do not see any difference in the quality of butter. Pity such unfortunates! They surely have lost the senses of smell and taste, and probably their sight is impaired, for poor butter often has signals in view to the practiced eye. These unfortunates are generally among the makers of butter, not the purchasers, the latter usually discerning the difference in quality without much trouble. What must we think of a woman, who although making about thirty pounds of butter a week is not able to sell it twice in the same place, and buys butter of her neighbors for her own use? Is there any excuse for this? Should she put on the market that which she cannot eat herself? Or of the woman who brings butter to town with a rag worked into the roll, or a small stone to give weight? Or butter in which dirt and defunct flies are incorporated, or worse than all, butter that has need of a barber? It is enough to cause us to bow our heads in shame. Those of our number who make good butter surely have a grievance. It is unfair to be obliged to take the same price that is given for a poor article, for that which is the product of extra care and diligence. It is bringing good butter on a level with the poor and discouraging its production. No other product of the farm is so sold, each stands on its merits with the buyer, the price is according to quality. The grocer follows this rule in his goods for sale. We pay him more for granulated than for dark brown sugar, more for a good grade of coffee than for poor. If we pay a difference for a better quality why should not he? The butter should be graded as well as the groceries, thus forcing the poor butter makers to improve their product or take a lower price. This plan would bring a larger percentage of the good quality to the stores. As the matter now stands, delivering it to private customers or sending to larger cities is the only resource we have to obtain an advanced price for a fine product, unless we form a combination and corner the market, which is impossible.

Now, we find that if the original problem, that, of making a good marketable butter, under the difficulties and inconveniences with which the farmer's wife contends, is finally solved by her neatness and industry, there is yet another problem which she must face which might be stated thus. If good butter costs the farmer's wife heavy labor and untiring watchfulness, what advance should she have in the selling price thereof? The customers who want a fine quality of butter, weighed out and delivered at their doors, should consider this matter, and help in the solution, not expecting it for wholesale, or even retail price, but be willing to pay a slight advance, in this way showing their appreciation and encouraging the production of a good article. Let us face the problem with courage; the twentieth century may hold the solution. In the meantime, let us strive to produce butter, sweet, wholesome, golden, fine flavored and firm in texture, fit for the table of—not only the King, but the farmer, who is surely sovereign of his own domain.

THE MAKING OF GOOD BREAD AND BUTTER.

By Mrs. Lucy Hart, Chesterhill, Ohio.

[Read at the Farmers' Institute held at Chesterhill, Morgan County, December 5 and 6, 1900.]

The making of good bread and butter has occupied much thought in the minds of mothers and anxious young wives for generations, and still continues to be a question, the solution of which each one must work out for herself, even then, perhaps, to find her best efforts quite often attended with failure. There is no broad highway to travel in our trials the end of which shall be marked with a loaf of good bread and a roll of golden butter, neither is there a rule that all women can apply successfully. Every woman who has bread and butter to make should try to make them good. It is due, not only to her reputation, but to her family, that she give it her best effort, and "if at first you don't succeed, try, try again." "Not failure, but low aim, is crime."

That there has been marked improvement in break-making there is no doubt.

Our grandmothers used to bake their bread in Dutch ovens before the fire, while today we have the latest improved stoves and ranges with ovens so arranged that the temperature may be more regular and uniform. One of the most necessary things to be considered is the flour and its treatment. It would hardly be fair to say that some mills make good flour and others bad, but let us take it for granted that they all make good flour. While this may be true yet I think the flour from different mills requires different treatment. If you have been using a certain brand of flour and change to another you will have to use the cut and try rule till you get acquainted with the new brand. There are different methods of making bread. In my experience with the different methods I like what is known as the "starter" bread the best. I will tell how I make bread, using the starter, and the only way you can tell whether it is good or not is to come and eat some. Cook what would make four tablespoonfuls of mashed potatoes in four pints of water, when potatoes are done take out in a crock and mash thoroughly. Then add to the mashed potatoes three tablespoonfuls of flour, three tablespoonfuls of sugar and two tablespoonfuls of salt. Moisten this with half a pint of cold water and beat until smooth then pour over this the water the potatoes were boiled in, and be sure to have the water boiling hot, when cool enough so it will not scald add a cake of yeast foam which has been previously soaked in a little warm water, or any kind of good yeast will answer just as well. Set in a warm place and let it rise. I always set my sponge in the evening and let it stand till the next morning. This will make four loaves of bread. In the morning sift the flour in the bread pan and if cold weather warm the flour some, but do not get it too hot as that causes the bread to dry out more quickly. When the flour is ready save a half pint of the sponge for a starter the next time you bake. Pour the remaining sponge in the flour and knead thoroughly. Knead the bread pretty stiff as it rises thinner. Let it rise until light, mold it into loaves, let it rise again and then bake ordinary sized loaves forty-five minutes.

The oven must be at the right temperature. I think that experience teaches us when the ovens of our own stoves are right. Judgment must decide when the bread is ready for the oven. I think more bread is baked before it is light enough than too light.

Graham bread by way of a change makes a very wholesome as well as healthful diet. Like white bread there are different methods of making it, but I prefer making it just the same as I do white bread. Instead of using all graham flour I use one-third white flour and knead very soft. A very nice way to raise bread after molding it into loaves in cold weather, is to place it before the fire and heat crocks and turn one over each loaf.

Now, I suppose after getting the bread baked the next thing is to have some good butter to eat, and the foundation of a good meal is ready. No matter how elaborate the other preparations may be, poor bread or poor butter spoils the whole meal and we feel that we have failed to prepare a good dinner, while on the other hand if some of the fruits or pastries are a little at fault the effect is not so noticeable and we feel better satisfied.

To make choice butter I should prefer a good Jersey cow and have her properly fed and cared for. I always feel better satisfied, and I believe the cow does too, when I know that she is getting good clover hay and clean, bright corn fodder for rough feed, together with corn and mill feed and a little oil meal. This will keep her in a healthy condition to give good wholesome milk. As milk takes up odors and impurities so readily, let us milk the cow in a clean stable, into a pail that has been thoroughly washed and scalded and strain into crocks that have received the same treatment and set away. Do not cover the milk until cool. In winter I let it stand about thirty-six hours before skimming.

but in summer skim sooner. I believe in skimming regularly as to length of time milk has stood. Stir the cream often thoroughly and do not keep it covered tight. It should be kept at an even temperature until ready to ripen. If strippings are saved strain in a separate vessel till cool.

When ready to ripen raise the temperature to about 70 degrees till the cream begins to thicken then set in a cool place until the temperature is reached at which you desire to churn, which should be as low as possible. Churning at too high a temperature results in a loss of butter as well as injury to the quality. A little salt thrown in the churn when the cream is breaking will often hasten the separation and aid in the gathering of the butter. Work the buttermilk out thoroughly, but be careful not to break the grain. Salt to suit the taste and let stand until the salt is dissolved, then work the brine out. Use fine salt that will dissolve quickly.

The butter should be worked until the salt is evenly distributed through the butter. If the salt is not evenly distributed the butter will have a mottled appearance. Mold into a roll and it is ready for the bread.

COOKING.

By Mrs. C. G. Norton, Sandusky, Ohio.

[Read at the Farmers' Institute held at Castalia, Erie County, January 21 and 22, 1901.]

The subject for this paper was not of my own choosing, and just why it should have been given to me I do not understand. Certainly not from my superior knowledge of the art.

In thinking over the subject two serious problems confronted me. First, just what points to touch upon; second, how to condense, so the paper should not be wearisome, and yet leave out no important points. That it is considered an important part of our education is evident from the subject being chosen.

Rev. De Witt Talmage in one of his sermons said, "Housekeepers by the food they provide, by the books they introduce, by the influence they bring around their homes, are deciding the physical, intellectual, moral and eternal destiny of the race." In a sermon a few sabbaths later he said, "Young women of America, turn your attention from the embroidery of fine slippers, of which there is a surplus, and make a useful shoe. Expend the time in which you adorn a cigar case in learning how to make a good, honest loaf of bread."

The great cry going up all over this country of the inefficient untrained cooks, who come to our kitchens for employment testifies to the fact that their education in that line has been sadly neglected. I am glad to note that some of Chicago's wealthy citizens organized an exchange for the sole purpose of giving women and girls an opportunity to learn cooking. The association will aim to make the family cook as important a person as the family doctor, hoping by that means to abolish from the American dining table heavy bread, soggy pie-crust, etc. Instruction will be given free.

Mrs. Hemenway introduced cooking in the public schools of Boston during the summer vacations. She continued her experiment for three years at her own expense. The result was so satisfactory that the city of Boston became convinced that the work was practical and necessary, and established schools all over the city. Other cities reading of what Boston was doing, sent on to study the methods, and ended by establishing school kitchens of their own; so that now you will find them in many parts of the country.

I am proud to say our own State University at Columbus has now a "Department of Domestic Economy." I visited it one day with a party of friends, it chanced to be the day before the board of trustees were to hold a meeting there, and the young girls under the direction of Miss Bowman were preparing to give them a dinner. They kindly let us peep into their oven, and take sniffs of the goodies. They lifted a cover from a kettle on the stove for us to take a peep. We saw two meat loaves which were just ready to put in the oven to brown over. We waited for them to be turned out of their moulds, and when one of the girls picked up a carving knife we protested; but we did it "kind of easy," when they said they would make another for the trustees. If that was a sample of the rest of the dinner they may well be proud.

A few days later one of those trustees attended an institute in our county. He spoke very highly of the good work being done by the institutes, and said he thought mothers made a great mistake in not teaching their daughters domestic science. He then spoke of the good work being done in that department of the State University, and was loud in his praise of the dinner given them by Miss Bowman and her pupils.

Should this education result in impressing upon the mind the dignity of labor, it will be worth all the effort. Honest labor is never degrading. The very thought of doing homely things well, is elevating to the character. To be proficient in the art of cooking is an accomplishment of which any of us may well be proud. It is an easy matter to make a fancy cake if one has a good recipe. But to get most nutriment out of the raw material for every day living is a very different matter. You may put into the hands of two cooks a given quantity and quality of raw material, one will make of it a palatable, nutritious food, easily masticated, that will, as the saying is, make your mouth water, while the other will, well—it will make many a hard working man make his way to the saloon. I believe if the American women could be taught to become a nation of good cooks it would go a long way toward solving the temperance problem. The working man that is compelled to eat burned steak, potatoes fried in cold grease, and sour bread, can not keep up the wastes of the system: and he goes from his table with a longing for something, to satiate which he makes his way to the saloon. Hunger causes intemperance and intemperance causes poverty, therefore, much of the poverty that exists can be traced to the woman that has the handling of the raw material brought to the house by the wage earner.

There is more truth than poetry in the old saying "that a woman can throw out of the window with a spoon, more than a man can bring in on a shovel." Allow me to give this extract from a paper read before the class of the Chautauqua School of Cookery by Mrs. Emma Ewing, "The whole territory of the drink question lies contiguous to that of the food question. It overlaps it in many places. Bad cookery is the unexpected cause of many an aching heart, the destroyer of many a happy home. It excites domestic discord, induces intemperate habits and scatters broadcast the seeds of disease. It is a powerful ally of the saloon and the brothel, and one of the most formidable evils with which civilization and Christianity have to contend. The largest portion of the daily fare of the American people is inharmoniously prepared or improperly cooked, consequently, it is indigestible, innutritious and unsatisfying. Such food deranges the stomach, and a deranged stomach is responsible for more misdeeds than a carnal heart. Poor coffee induces an unnatural thirst for lager beer. Badly prepared, innutritious food drive thousands to drinking dens, and the recruiting offices of crime are filled with stragglers from poorly provisioned homes. There is no more important organ in a human being than the stomach, and its need should be treated with thoughtful consideration. Drunkenness often has its origin in the food one eats. It is safe to say that of the sixty thousand drunkards who die annually in the United States, a large proportion have the appetite aggravated by improper food. When people are compelled to live day after day on slack baked bread, heavy pancakes, grease soaked meats, watery vegetables, sloppy coffee, is it any wonder that a great number of them resort to stimulants for relief?"

The above is corroborated by Rev. Edward Steiner, of Sandusky, in his paper on Russia and its peasants, where he makes this statement: "The reason the Russian does not drink more is because he hasn't more money, and the reason he drinks so much is because his food is bad and insufficient."

Another point here is this, when the mother and daughter have once learned the importance of strengthening food to repair the wastes of the system, they will take pride in the arrangement of the bill of fare. Cleaner table napery, fewer broken dishes, a more orderly, home-like place will be the result. The careless, slovenly habit of doing things has done much toward making cooking seem like drudgery.

Another point: Little savings here, lead to savings there. Reform in one home leads to improvement in the next-door neighbor. Who can measure the social and moral improvement growing out of *one* family learning to cook well?

Teachers in the schools freely admit that properly fed children make the best students. I am glad to see this question agitated, and predict, that the time is not far distant when first-class cooking, will be valued above second class piano playing. A sister of one of our great professors, an educated lady—and an artist as well, said to me a short time ago, that she considered good cooking *one* of the fine arts and it was a part of our education that was too much neglected. In her observations about the city, she had come to the conclusion that much of the poverty was caused by bad cooking.

Cooking food is not only for the purpose of making it more palatable, but by the action of the fire soften it and thus render it fit for the stomach to digest. But how easy that object may be thwarted by the injudicious management of that same fire. The cook should always remember that meat fibre is toughened by rapid cooking. The more gently it cooks the tenderer it will be. To roast meat perfectly requires a double dripping pan. My dripper is large enough to hold two large fowls, but when I wish a small roast, or small fowl, I find two common sized pressed pans serve admirably, the object being to keep all the steam confined. The first ten or fifteen minutes the oven should be very hot, by which the natural juices are kept in the meat, then lower the temperature, give plenty of time and you will have a most palatable nutritious roast that will delight the eater. I think the reason the French excel us in cooking meats is because they give more time to the cooking.

We had several hens we wished to cull from the flock, and I would have one dressed the day before I wished to serve it, put it to cooking early in the morning—putting it into boiling water, leaving it on the hottest part of the stove for ten or fifteen minutes—then removing it to the back part of the stove to simmer till very tender. The next day it could be made into chicken pie, salad, fried, any way desired, and it was better than any spring chicken. Any meat, unless wanted for soups or broth, should be put into rapidly boiling water for the first few minutes, then slowly simmer. A little care in the cooking and many of the cheaper cuts of beef can be made just as palatable as the more expensive ones.

Sisters, did you ever notice when the brethren recommend balanced rations for the stock, and tell of the great value of corn-stalks, and that every part of it can be utilized for food if it is only shredded fine, etc., there is always a machine to do this work for them?

Let us take a lesson from them and provide ourselves with the little meat chopper. Pieces that would otherwise be considered quite inferior can be utilized, and will make most appetizing food. The cheaper round steaks can be run through the chopper twice, and if quickly cooked over a brisk fire, seasoned with butter, salt and pepper, and brought to the table hot, will be equal to some of the dearer cuts, and no money paid out for bone. They help one out in an emergency too. We will suppose you had a roast yesterday, you had a little left over, enough you thought for your dinner today, but when it is too late to make other provision, up drives some of your city friends, and while you are welcoming them with your tongue your mind is taking a sort of double-back-action twist, and you think, "What shall I do for meat?" Now, if you have the little chopper you have but to run your meat through it, follow with two or three crackers (milk cracker size), add a couple of well beaten eggs, some of the gravy you had left, or in absence of that a little butter and cream, fry in little pats, and you will declare the second cooking of that meat was better than the first. Perhaps you have a small steak and wish to make more of it, well, just get a slice of raw pork run it with your beef through your chopper, add cracker, a couple of beaten eggs, and cook in fryingpan with a little butter. It will not only save you meat, but it will save you time. To make a beef or veal loaf, not one-fourth of the time will be required that it takes with the chopping knife and bowl. Put pieces of bread on a plate and set on your stove shelf where they will dry, run them through the chopper, put away in self-sealing cans and they are always ready for the many uses to which they can be applied. By running through some lean beef (round for instance), putting it in cold water and setting it to the extreme end of the stove where it will barely simmer for two or three hours, straining out the now useless meat and seasoning to taste, you have a readily digested food, which the system can immediately take up to restore wasting vitality.

Speaking of soups, I believe if they would be found on our tables oftener it would be to our advantage. Palatable, nutritious, vegetable soups can be made in great variety without the aid of meat. Scientists claim they are a necessity, and required to maintain a proper balance of food by replacing similar salts omitted in our dietary of very white bread.

The possibilities of our vegetables, and the merits of the dishes that can be compounded from them can not be too well understood. We are prone to envy our city friends, the facility with which they can reach the market for supplies, but I am inclined to think if we will take into account the stock we have at our command, and its freshness, the balance will tip in our favor. There are the fresh eggs, and an egg has been defined as food in a concentrated form. There are fifty ways of cooking it, and the most objectionable is to fry it in grease. An omelet will help out a slim meal wonderfully. Break six eggs into a pint bowl, beat well, then fill up the bowl with sweet cream, have spider hot, in which you have melted a little butter, turn in the beaten eggs, and as it begins to cook, run your pancake turner under, and carefully lift so that the uncooked egg will touch the pan; do this until all the egg is cooked which will take but two or three minutes, and should not be done until the meal is about ready, as it must be served immediately after it is cooked. A favorite dish at our home is, to butter a shallow dish—break in as many eggs as desired, salt, pepper, put bits of butter over them, a few spoonfuls of cream, and bake in a hot oven. This, too, must be cooked just before the meal is served, as it requires but a few moments, and must be served from the dish in which it is cooked.

You are a long way from market and you think, "Oh! how I would like some escaloped oysters!" If you have celery, wash, cut it up fine, (you can use the outside unbleached stalks, too), cook in salted water until tender, butter the dish in which it is to be baked, put in a liberal layer of cracker crumbs, then a layer of the cooked celery, put bits of butter over, then another layer of crackers, and so on until all the celery is used, having the top layer of crackers, put bits of butter over and turn in the water in which the celery was cooked; add some sweet cream and milk, cover and bake as you would oysters. Try it! For a first course nothing can be finer than cream of celery soup. By the way: these escaloped dishes can help out as emergency dishes. Canned sweet corn escaloped is fine. Canned salmon if escaloped can take the place of a meat course. In purchasing salmon I think it cheaper to buy the best salmon, as it is from the middle cuts, with little or no bone. Another dish that may fill the place of meat, can be made by mashing very fine some cooked beans, take an equal quantity of mashed potatoes, season with butter, salt, pepper and a very little sage, put in a little of that dry ground bread I told you of, mix thoroughly, make into cakes and fry in the spider in which you have very little butter.

If you are so fortunate as to have hubbard squash, serve it on the half-shell. Wash the squash, cut open through the center, lengthwise, take a spoon and scrape out the inside, put in a little butter, a little sugar and place it upon a tin and bake in the oven, occasionally basting the inside with the sugar and butter. If the squash is of good size, one-half will do for a meal, reserving the other half for another meal. Send it to the table in its own shell, placing it upon a platter.

Do not forget the fruits in their season. In winter escaloped apples are a fine addition to the midday meal. In early spring the pieplant escaloped and served with the meat course is very fine.

"Everybody" says: "We must not eat pie or try to digest it, for the dyspepsia will be visited upon the children to the third and fourth generation of those that eat pie," and yet we keep right on eating pie every time we can get it, and I want to tell the sisters if the good men *will have* pie, how to save time in the making. Instead of making crust for one or more pies as the case may be, take a pan full of flour, salt, work in the shortening and set aside. Now take another dish, and with a spoon take from the prepared flour just enough for your present baking; whether it be one crust for custard, a pie with two crusts, or two or three pies, moisten as usual. Now you have enough prepared flour for several bakings, and it took no more steps to the flour barrel and lard jar than it would have taken to make crust for one pie; besides it is such a relief when one is in a hurry to know that half the work is done. Care must always be taken, that not a drop of water gets into the mass you are to reserve, or you will have dry lumps.

I believe it a duty we owe to our families and ourselves that we save all the steps possible. Owing to low prices of all farm products, I resolved trying to do my own work. I well knew that to be on time with three well-cooked meals, in addition to other duties, there must be no waste of steps day after day. Fortunately my kitchen table was on the side next the woodhouse. The table originally had one large drawer. I had the legs sawed off about eight inches, and large double castors put on (such as are used to move heavy furniture). I then had the top of the table taken off, and had the length divided into three drawers of abou six inches in depth, deep enough to bring the table up to its original height, and put the top on again. Placing the table against the wall I had the wall sawed out the length of the table, and to the height of the ceiling. I then had a cupboard put into the wall, three drawers just above the table, the rest divided into shelves. There I had right at hand drawer for sugar, flour, spices, cooking utensils, well, almost everything needed to do cooking with. The two upper shelves not being within easy reach were used to store empty fruit cans. Count the steps you save in one day. Multiply the number by three hundred and sixty-five.

It would hardly do to close this paper without saying a word about bread, when it is claimed that of all the food required by man bread is the most important; so important that it is called "The Staff of Life." "Starve alive," would be more appropriate for some of the compounds called bread, yet, to make good bread is no difficult task if one but pays attention to little details. All housekeepers will testify that they can make better bread in summer, than winter, which is owing to the more even temperature. Good flour and sweet yeast are the first essentials; then if a temperature of 70 to 75 degrees can be maintained from start to finish, and if well baked, your loaf will be rounded in the center and a delight to the consumer. The baking is an important part, and it would be well to obey the *new commandment* which says, "Remember thy bread and bake it well; for he will not be kept sound that eateth his bread as dough."

"Cupid brought this message,
From my lover once,
I could not interpret it,
I was such a dunce;
But I think that women
See with clearer eyes,
Or, as they grow older,
May-be they grow wise.
Men's hearts are in their stomachs,
I have since found out,
If you don't believe it,
You will soon, no doubt;
Cupid will not tarry
If your bread be sour,
If your cake is heavy,
He'll not stay an hour.
And he goes off slowly
But with tearful eyes,
When he shuts his teeth on
Gutta-percha pies.
Don't think of embroidery.
Lay aside your book;
If you care for cupid
You must learn to cook."

DOMESTIC SCIENCE.

Written by MISS ANNETTA FINLAY, Worcester, Mass.

[Read at the Farmers' Institute held at Keene, Coshocton County, December 5 and 6, 1900.]

Dear Ohio Girls:

Many times since the forty-three girls from many different states came to the Oread, have we had reasons for thankfulness that it is our happy lot to be in this school, made possible by the philanthropy of our revered president.

Perhaps some of you have read of this school of Domestic Science. It is to tell you something of its purpose that I write to you. believing that you will be interested in a subject that appeals to all women, young or old.

It is a matter of some astonishment that Domestic Science has received so comparatively little attention, considering the number of schools and colleges for women that we have in this country. In a large majority of cases of the young women attending these schools and colleges no expense is spared in cultivating the artistic and intellectual part of the nature, entirely forgetting that the eye and hand must be trained as well. Too many girls come out of school unprepared for the battles of life, and unequipped for their field of work, wherever it may be.

Mr. Perky, our generous hearted benefactor, saw this crying need, and three years ago founded the Oread Institute of Domestic Science.

I wish you could see this beautiful place. Standing on a grassy slope, and partly hidden by overhanging trees, one's first thought is of some interesting old castle. It is an immense stone structure, with circular towers at each end, the whole being surmounted by the long roof garden. From this height fine views of the city and surrounding country are obtained. The inside of the building is most modern, there being hardwood floors throughout, it being heated by steam, and lighted by gas and electricity. The equipment of class rooms, laboratories and kitchen is most thorough and complete and the instructors excellent. Here we are taught everything which has a direct bearing on Domestic Science, Cooking, House Economics, Marketing, Practical Housework, Laundering, Elocution, History of Foods, Physics, Chemistry and Physiology. "We learn to do by doing," is our motto in all these.

To cooking, being one of the most important things we learn here, we give the most time. In our convenient and modern kitchen, we learn all about foods; which are the proper foods to use and which should be discarded; the right way of preparing them; the proper food for the child, the adult or the invalid; in short, we have found that without proper food, clear thinking, and consequently good work is impossible.

By the thoughtful study of physics, we come to a knowledge of nature. Man has become civilized by thinking, studying and improving upon former methods.

In physiology, by a study of the body, we learn just what it needs, what is harmful, and what will ward off illness. We learn that the prevention may be as ennobling a vocation as the cure of disease.

By the chemistry of foods we learn their composition, and by knowing the needs of the person, we may ascertain the kind of food he requires. This curriculum keeps us reasonably busy. But why should we not be so? Here we are taught that human progress is the result of some sort of enthusiasm, or love for our work, that an idle hand becomes a weak one, and to always look for work if we would be blessed.

However, our president does not believe in " all work and no play," and he sometimes plans for us most delightful holidays. One day, we all went for a clam-bake on the shores of beautiful Lake Quinsigamond; it was a new experience for the Western girls and a jolly day for all. Another day we went by electric car to historic Shrewsbury, a village several miles away. Here we had a real colonial dinner in the old home of Artemus Ward, of Revolutionary fame. It was an extremely pleasant day we had, going over the house and grounds, examining the interesting and time-honored relics. We always come back from such excursions refreshed mentally, morally and physically, and enter on our duties with renewed vigor.

We learn here that object lessons may be very useful as a means of gaining knowledge. One day the class visited one of the large loom works of the city, to see how the different kinds of cloth are woven. This was interesting, as we make a study of texture in our laundry work. Another day we went on an excursion to one of the hills surrounding the city, where a high stone tower, in memory of the historian Bancroft, is in process of erection. As we were just then interested in building-stone, in our house economics, this served as a useful object lesson. One day recently we visited the shredded wheat factory, where the shredded whole wheat biscuits are made in such quantities. In these are used the whole wheat kernels, containing all the properties to keep, bone, teeth, muscle, nerve and brain in natural and healthful condition. We know that in the earlier period of our civilization, when the people were almost universally strong and vigorous, and dentists and patent medicines unknown, the cereals were used in their natural condition. We believe that naturally organized foods make possible natural conditions. In proper food is found the means, if you are well, to remain well and grow better and stronger each day. Food is the builder of the body. If the food is impoverished, and unnatural, so the body will be. If the food is good, by which is meant properly cooked food that contains all the properties in correct proportion to nourish all the parts of the body, then we may be healthy and vigorous.

The longer I am here, the more I see the great good that such schools are doing, and the need of many more in our broad land.

Our president calls us "cadets, training to battle against bad cooking and bad food." We believe that if more people would see how important a factor in our lives proper food is, they would live happier, better and longer lives.

In short, we believe that woman can have no nobler mission than that which teaches to the world, "the gospel of right living."

FARMERS' WIVES.

By Mrs. M. G. Ruble, Damascus, Ohio.

[Read at the Farmers' Institute held at Damascus, Columbiana County, January 28 and 29, 1901.]

As a general thing farmers' wives grow old more quickly than any other class of women. At thirty years of age they have often lost all semblance of youth, and at forty they are classed among the old people. At the very time when their sisters in the city are at their physical and mental best, life is practically over for them, except as they live again in their children. Hard work is the reason assigned for this state of affairs, but work—even hard work—never injured any one, *providing* the body and mind are intelligently cared for. Physicians say insane asylums are largely recruited from the farms, and farmers' wives are most subject to certain mental diseases. The scientific explanation of this fact is, the monotony of their lives and surroundings. Change is essential to us. The continual repetition of sights and sounds, is injurious to the nerves. To hear new voices, see new faces and to go into houses we have never entered before, act as tonics to the mind.

While the farmer's wife may not be able to travel a great deal, she can do wonders in her own home. She should change the arrangement of her furniture at least once a year. Even the sight of a table in a different position is restful, and one never knows the possibilities of her chairs until she has seen them at every angle. An occasional change from one sleeping room to another is beneficial.

The good man of the house will object, may even quote the old adage of having a place for everything and *keeping* everything in its place, or may tell you *his* mother never rattled things around that way in house cleaning. Just be patient and he will accept the situation as woman's strange whim. Better not ask him to help move the furniture while he is in an opposing frame of mind.

The summer's hard work is not as hard on a woman physically, as the winter's more restful time, when she sits in a hot, poorly ventilated room, feeling too dull to enjoy sewing or even to read the latest paper or magazine. Farmers' wives take less exercise than other women, a brisk walk is an almost unheard of thing, yet we all know one can not be really strong without exercise in the open air. Even if the roads are impassable for the horses, one properly dressed may go out for a walk and come home warm and rosy, feeling like another being. Why not visit the school? The interest shown in school and teacher will have a gracious influence upon the boys and girls. Many calls on neighbors may be made, or a tramp of inspection, with the husband, over the farm, will be a pleasure to both.

A clever physician once prescribed a new and becoming dress, as the best remedy for a sick careworn woman. History says a cure was effected. At any rate a woman is only as old as she looks and a becoming way of arranging the hair, may take ten years from one's age.

It is a great advantage for farmers and their wives to belong to some club or organization outside of their church. The good of such is, a knowledge of self. Individuality is developed, unselfishness is increased. The greatest good to the greatest number becomes a more desirable thing. We learn to appreciate and enjoy the talents of others and outgrow criticism and prejudice. Expression is to our life what fragrance is to the flower; many timid women suffer all their lives from self-consciousness and inability to say what they think. To know people better, is generally to like them better. A woman alive with good will toward others, can do more in every place where God has placed her, than the frigid, narrow, prejudiced soul that thinks no way but her own is right. In all such work the interests of the home and children are advanced, and the busiest housekeeper will be better fitted for her duties.

Belonging to a club does not solve the social problem for farmers' wives. There is nothing better as a promotor of neighborhood sociability, than the old-fashioned hospitality. Women who are not physically strong, and others who are trying hard to economize, feel like dropping social life, because of the added labor and expense, but a few practical women by setting an example of simplicity in entertaining would do much to correct this. A woman who makes her home the center of a cheerful unostentatious social life becomes a public benefactor.

What does this new century bring to farmers' wives? It brings time, hope and opportunity for all good things and besides these the new year brings the blessed thought that many of those we love are with us still; that home, food, clothing and all the many little needs of life are not beyond our reach; there are new books for us to read; new people to know and love, and God's winter is surely going to be followed by spring, and again we will see blossoms and leaves upon the trees. The old things are passing away, all things shall become new. What are some of the old things? A little lingering selfishness, a little pride, a little unwillingness to accept our own burdens, a little sadness and unrest. These are among the old things. With the new things does the New Year bring us new labors, hurts and sorrows?

These, too, are only a part of the *all* things that are working together for good, to them who love God. The loving God is our part of the process. The trial and pain that is to work out our good, are His to carry for us.

"Labour is rest—from the sorrows that greet us,
Rest from all petty vexations that meet us,
Rest from sin promptings that ever entreat us.

Labour is life—'tis the still water faileth,
Idleness ever despaireth, bewaileth,
Keep the watch wound or the dark rust assaileth,

Work for *some* good be it ever so slowly,
Cherish some flower be it ever so lowly,
Labour—*all* labour is noble and holy,
Let thy *good* deeds, be thy prayer to thy God."

THE EDUCATION THE FARMER BOY NEEDS.

By John M. Nutt, Centerville, Ohio.

[Read at the Farmers' Institute held at Centerville, Montgomery County, February 8 and 9, 1901.]

Whatever I may say in regard to the education of the farmer boy, is applicable also to his sister. And judging of the future, by present existing facts, it will be but a few decades until our girls will be better fitted for intelligent American citizenship than our boys. In the rural districts a larger percentage of the girls graduate from our high school, than of boys.

What is education? It is information assimilated by the mind and understanding, made a part of one's self or being. For instance, you study the history of the Roman Empire in such masterful way that you thoroughly understand and know all about its rise and downfall, then may you say, "I not only know Rome, but I am Roman." So, with the study of America, the "three R's," or any other subjects that may be mastered. The farmer boy needs a thorough general education, he needs to improve every opportunity afforded by our public school system, in order that he may become an intelligent citizen of an educated nation, where he is an integral part of the government, as well as citizen.

The education of the child begins much earlier in life than many of us realize. From the time he first opens his eyes and beholds the light of this world, impressions are being made upon his mind, impressions which are factors in the formation of his character. He receives his first lessons from his environments, and from those persons who are most interested in his proper development, namely, his parents. It is said that first impressions are most lasting. Parents should be very careful and sure that they are giving, both by precept and example, lessons in a line of morals, such as they will be proud to see developed in after years. True, a harmful or undesirable impression may possibly be eradicated, but of this fact be assured, it will leave its scar, and thus mar the beauty and weaken the strength of the desirable firm character. Teach him pure morals, so he may not become a moral wreck. Let him, in some manner, earn his pocket money and thus realize the true value of a dollar and be more careful of its use.

He should take a thorough commercial course, this he will find of value to him whether he engages in agricultural pursuits or follows some other industry. He should procure and study, the bulletins from the Agricultural Experiment

Stations, and those of the United States Department of Agriculture. If possible he should take a full course in some good agricultural school, such as the Ohio State University, there learn well the principles of plant growth, how to preserve the fertility of the soil, proper rotation of various crops, desirable points which add to the value of the domestic animals, to distinguish between a dairy cow and a beef cow, a draft horse from a chunk or plug, a coach horse from a roadster, and a great many other things that will be beneficial to him.

As he acquires his education, let him use judgment and common sense, lest he develop into something like a noxious weed known as smart-weed.

No country in the world offers better educational opportunities than ours. Our public school system is unsurpassed anywhere on the globe. It has multiplied itself fivefold in thirty years. In 1899 our public schools cost one hundred and twenty-three million eight hundred and nine thousand four hundred and twelve dollars, a larger sum than combined Europe' expends for a like purpose; our technical schools, colleges and seminaries equal those of England, France and Germany.

Remember that every human being possesses two distinct and dissimilar personalities, which we may define as the positive entity and negative entity, the first is progressive, does not turn aside when barriers and obstacles appear, but surmounts and overcomes them. The second, or negative, shrinks back with distrust, doubt and fear.

There is told a story of three young men, "who, having completed their college course, decided that they would endeavor to reach the Temple of Fame. Each mapped a course by which he expected to reach the coveted goal. The first man chose science, the second shut himself up with the muses, and both labored day and night, so great was their desire to hear of their own great deeds. Both soon died, unknown and unmourned. The third man, busied with the tasks of each day, entirely forgot about the Temple of Fame in the absorbing interests of life. He labored diligently for his loved ones, who were the spur to his best endeavor. One day, as he was out on the highway in quest of bread for his wife and his little ones, he discovered a magnificent edifice. Filled with surprise that he had never noticed it before, he placed his well filled basket down for a few moments, and turned his footsteps in the direction of the beautiful building. He explored it from the grand portal to the lofty dome, then, returning, once more took up his basket and proceeded on his homeward journey, filled with joy at what he had witnessed. Soon he met an aged pilgrim journeying in the direction of the structure he had viewed, and asked what the magnificent structure was. 'That,' replied the old man, 'is the Temple of Fame'." The bread gatherer had passed through the Temple of Fame and knew it not.

Young man cultivate the positive entity of your being, faithfully perform every duty, be it never so common or lowly. Then may you see this Temple of Fame. But if you allow the negative to predominate, and withhold the good that is possible for you to achieve, you will never see this magnificent structure.

It has been truthfully said, that, "We live in deeds, not years, in thoughts not breaths. And he who thinks most, acts best, lives noblest, lives more in one single hour, than in years do many, through whose veins the blood courses but sluggishly."

WHAT SHALL I DO?

By W. D. Harmon, Richwood, Ohio.

[Read at the Farmers' Institute held at Richwood, Union County, February 22 and 23, 1901.]

From away back in the very beginning of history we hear that admonition to man, "In the sweat of thy face thou shalt eat bread." This has come echoing down the corridor of time, from generation to generation, till today we too find ourselves subject to its mandate. While it is true that we have an occasional speculator who, by a manipulation of stocks or grain, both visible and invisible, succeeds in a sort of legalized stealing from his fellowmen, and a few who are so unfortunate as to be born lazy or rich, yet to the great majority (those who constitute the strength of a nation) there comes a time when they must stand face to face with the question, "What shall I do that I may honorably win my daily portion, and the necessary wherewithal that I may be clothed?"

Let me ask you, What more important and often arduous task comes to a young man or woman than the proper answering of this question? It will not be my purpose to answer the question for any one, but rather let us together look over the field.

There are five essentials that enter into the make-up of a successful business—First, it should be agreeable to the person or persons interested; second, it should be honorable; third, it should throw one in contact with the better class of citizens; fourth, it should be remunerative, and fifth, the work should be of such a nature that it will give the mind food for thought.

The first question, that of adaptability to the work, will and must be left to the individual, for it is almost as impossible for one person to arbitrarily select a life work for another, that will be agreeable, as it is to foretell the verdict of a Justice's Jury, so do not try it. As to the second, it is assumed that all wish to be honorably employed. A person who has arrived at a sense of the necessity of a choice of a line of work has generally attained an age to be able to know what is honorable and what is not, but this one thing remember that all *honest* toil, whether it be mental, or manual, or both, is honored and honorable and that there is no one so contemptible as he who in his dishonest greed for money, resorts to means whereby he may wrench from his fellowman his goods and give nothing in return.

I sometimes fear we get to looking at this matter of honor in business in a way that I can best illustrate by the story that is told of a poorly clad man standing at a window and looking very wishfully at a loaf of bread, when a bystander came up and said, "My friend! you're hungry, ar'nt you?" "Yes! and my family too is hungry." "And you were thinking of stealing that loaf of bread?" "I admit it, I was." "Don't do it. If you do you'll be arrested. Steal the whole bakery and be a man among men." Ah! there is something wrong with the standard of honor when we look up to the man who by some unfair means steals the whole shop while we arrest the one who misappropriates the loaf.

I say, the man who shovels gravel and drives spikes on the railroad, and does it honestly, is to be rated as a king in comparison with the man who steals from his fellowman under the guise of speculation, or sells to his fellowman that which will destroy his mind and body.

I have said our business should bring us in contact with the better classes of people. We must admit, whether we would or not, that we are to a greater or less extent the victims of our environments, and largely to the character of our associates do we owe our own character. We do not live to ourselves alone, for we will give off an influence to others, and in return we will take on some of the characteristics of those with whom we are daily brought in contact. If these be of the better, nobler class, those of a high moral standard, their influence will be stimulating and elevating, while on the contrary if they are of a doubtful standard, our association with them will beget within us the same degree of doubtful character. From among his business associates one will almost invariably find his friends, and if they be of the latter class, though he may have good resolute intentions, "He will get without his own will into a set which is deteriorating to his character, and you know the fruits of lowering the moral tone, in slacking the grip of the conscience, how he will become pliant in will, feeble in purpose and flaccid in character. Every one has a duty to himself to be his best self, and he can never be that and be with evil associations."

Leaving this we pass to the question of remuneration. Honest, diligent, intelligent effort will bring its compensation, and there are so many things to be classed as compensation that one is at a loss to know where to begin and when to stop. Let us first free our minds of the idea that money alone is the only measure of compensation, for such is not the case. If you will cast your mind's eye over your acquaintances for a moment and look at the *true* inward life of those who put their sole intent on the gathering in of money, I think you will agree with me that they, of all people are the poorest, poorest in point of friends, poorest in home comforts, poorest in breadth of thought, and often poorer clad than the beggar who asks for bread at your door; narrow, and self-centered they become practically outcasts on society and are watched with interest, only by some heirs at law who meditate on the number of their days. While money has its proper place and function to perform, and should by rights be considered in calculating our item of compensation, it should also be kept in mind it is only a means to an end, and should hold no more than an equal place with other things. I should not consider a business remunerative that would not tend toward the development of all the talents with which an all wise Creator has seen fit to endow man, for He knew what He was doing when He gave us these faculties, and neither you nor I have any right to set ourselves against His judgment and thereby cheat ourselves and friends of the better part of our being.

While considering the subject of compensation we should not forget to reckon the influence of the home, of those who have a common interest with us in all that we are or may be. The knowledge of the fact that we are so surrounded will foster our better nature, and we will live on a higher plane.

The fifth essential is, that the nature of the work should be such as to give the mind food for thought. If we do not have new matter and changing conditions brought to bear on us we will become mental dwarfs and instead of being alert and active, reaching out in new fields, we will be inactive and machine-like.

It was my fortune some time since to be in the city of Elgin, Illinois, the mere mention of which brings to our minds some thought in connection with the watch industry. I went to that great factory where there are turned out thousands of watches every year and saw men and women, as they sat at their benches, each making one little piece or more often only doing a part toward the making of one piece that goes into the make-up of a watch, from one year's end to another. No change of thought, no new conditions, no varying business interests. Knowing these things I was not surprised as I stood on the street near the walk leading up to the factory when the bell rang the noon hour, to see those people get up from their benches and run, as if for their very lives, to get away from the narrowing contracting nature of their work.

I stayed at my post and watched those three thousand or four thousand pass me at the gate and the nature of the work was written on their faces. Old, young and middle-aged faces were there as were also tired and care-worn faces, but alas! too few showed any breadth of thought, or ability to cope with the ever new problems that present themselves; but little more than human machines.

What is true of the Elgin watch works is true of other classes of factories, where the labor is done by piecework. I have not said this to in any way cast reflection on the wage earner of the factory, not at all, but to show that it is preferable in selecting our business to select one that will not take on this narrowing process. Someone has said that there is an unwritten sign over every door, "Brain Wanted Here." Our civilization calls for trained, developed minds, and if our employment is such that it will broaden and deepen our intellect, we are the gainers thereby.

Then what of our business as farmers? Will it stand the test? Will it come up to the standard? Will we find in it the five essentials? Let us see!

Is it agreeable? That depends on each man and is not for me to answer. Is it honorable? From the ground and the products thereof we get the foundation of all business; not only the agriculturist, but the miner, the merchant, the manufacturer and all others look to the soil and the underlying strata for their prosperity, but on the farmer most of all is every one dependant, for his products are essential. It is to him the tradesman, the miner, the artisan and manufacturer look for the production of their food as well as a large part of the materials used in the article of manufacture and trade. There is nothing more honorable than winning from the soil, those things that form the basis of food for the feeding of the nations and the fiber for the manufacture of their clothing.

One who has in any way watched the different occupations of the world will tell you we must return to the earth to get our true basis of prosperity. Then we are at the very foundation, and upon our business rests the commercial status of the nation, not on Wall Street as some seem inclined to think. But here is where we are lacking; we do not magnify our calling as we ought, and not until we do can we expect to hold the place in the esteem of others that we should.

The farmer is, if he is what he ought to be, an all-round business man. He has dealings with the banker, the grocer, the hardware man, the clothier, the dry goods merchant, the buyer of stock and the shipper of grain; he also has employment for the laboring man, but he need have no business with, or for, an idler. Hence he is brought into contact with the better class of citizens for the busy people, as a rule, are a much better class of people than the loafers; thus we have found that farming fills the third essential.

To the question of its being remunerative, I will answer directly, Yes! And in confirmation of the assertion will ask you if there are not more retired farmers living in our villages (not to speak of those still in their country homes), than men who have retired from other callings? Again, read of the financial failures that reach the courts, and when you consider the enormous capital invested, there is by far a smaller percentage of farmers who fail than of any other class you can name.

The man behind the plow knows there is room for mental activity. If he is successful he watches markets, winds, clouds, signs of the times; he is a chemist in his way, a mechanic, an observer of birds, insects (Hessian fly and Chinch bug for example), and of nature in her wondrous beauty. He studies soil conditions and tools with which to work his soil, for he knows a mistake in these may mean the loss of a crop, and many other things come under his eye to keep him from falling into that mechanical way of doing things that is so disastrous to the mind. And so we might go on and ask if you ever heard of a society being formed to send children from the country to the city in order that they might in-hale the foul odors, gases, etc., for the improvement of their health, and many other such question.

The cities pay a tribute to rural surroundings in expending thousands of dollars annually in maintaining their parks, those oases in desserts of house tops.

Did you ever read a poem that was inspired by early impressions received in the counting room, or from behind the counter? or drunk in from the city hydrant? That well in which hung "the old oaken bucket," was on a farm, for "the orchard, the meadow, the deep tangled wildwood" were there.

Yes! in poetry or prose, in fact or in fiction, our business will stand the test, and yet I do not advise you to farm, nor do I advise you to go into the counting room or behind the counter, nor do I advise you not to do these things, but this we can do. In choosing our vocation, we can see to it that it is honest and honorable. And having chosen our work, we can put our force into it; then it will bring its compensation.

ARE WE LIVING UP TO OUR PRIVILEGES?

By A. H. Judy, Castine, Ohio.

[Read at the Farmers' Institute held at New Madison, Darke County, February 20 and 21, 1901.]

In order to realize and appreciate the privileges of today, let me for a moment ask you to retrospect and meditate on this domain which we inhabit, and where we enjoy the advantages and blessings of civilization to a degree equalled by few spots on the face of the earth, and excelled by none. If you will go back in the realms of time with me to a century ago, we will follow memory through primeval forests, where the wild deer browsed unscared, save by the moccasined foot of the red man, or the twang of the Indian bow and the whir of the flinted missile.

In this vast unbroken forest, where grand oaks stood sentinel and monarch of their less stately companion trees, where the gloom of eventide and the solitude of midday seemed as far from the real habitation of civilized man as though they had been a deserted crater on the moon, or a lost spot on old Jupiter, our pioneer settlers cautiously made their way. How well they judged of the promised land in the wilderness they had entered, perhaps few of them who first braved its dangers and hardships ever knew; but surely the generations that live after them, and the whole civilized world, can testify to their accurate and penetrative foresight and to them and their memory it should be our privilege and our pleasure to ever turn with thankful hearts and tender speech, for the advantages we enjoy in the vast empire which their ardor founded. Stout, indeed, must have been the hearts of the young husband and his bride who braved the solitude and the dangers of this region. Yet with hearts full of hope, with strong physiques, with willing hands and high ambition, they hewed their simple homes from the temples of God. Here they lived up to the privileges of their day, and with sturdy purpose the white settler's ax rang out, as it smote the giant of the forest, while his trusty flintlock reposed against a nearby tree or bush in easy reach to protect against any attack of the evening. At eventide the tinkle of the cowbell down by the purling brook told the pioneer which way "old bossy" had strolled, and when the labors of the day were ended the settler and his helpmate rested in the shadow of their round log cabin, and living up to the privileges of the time and place, listened to the gay throated birds whose God given music made them forget their solitude and their cares and pressed a happy, joyous presence on the scene. Then, turning their faces to heaven, they gave themslves over to the Creator of all and leaving the birds and the beasts and the woods and foes to the night, sought their repose. Thus day by day the transformation came. This is no dream; it is a reality so true and so stern that I am very glad, that I live at the present time and not a hundred years ago.

It is very difficult to imagine that only a century ago right here was a blockhouse and a fort called Fort Black, a wilderness, a lot of wild Indians, and a few white settlers. Yet it is true, and the picture that I have feebly and briefly drawn is just a faint restrospective view of this very vicinity.

I am sometimes constrained to use the word "duty" very little, as it seems to carry with it a sort of nagging, compelling force that very few people like, so I would substitute "privilege" as often as possible for the word "duty." Privilege sounds more elevating; it seems at once to carry with it a degree of blessedness, and that idea appeals to the broader, better part of our nature. So, when I speak of living up to our privileges in some instances I wish, while you do not say it, you would associate with the word, sincere thoughts of duty as well.

In this day, with magnificent cities on every hand, with their grand palatial residence blocks, their beautiful lawns and artistic shrubbery, with sweet, enchanting music drifting from the fleecy draperies that screen the mirror-like plated windows, with the brilliant and fascinating electric illuminations casting their fairy rays over portal and through lattice, with fantastic pleasures within and gorgeous surroundings without; their miles of boulevards and brick streets; their whir of trolley cars, and their sky scraping downtown office and commercial monuments; their costly and inviting opera blocks, and their grand, colossal cathedrals; with their wonderful system of schools and their famed colleges of art and science; oh! how the soul of the visitor from the country longs for one or a few of these many, many privileges and environments. How the tired housewife from the farm, the toil-worn husband and the lass or laddie, contemplate, compare and con over the allurements and advantages of their fortunate city cousin and dream many, many nights of the paradise so near and the joys and pleasures so dear to perfect human happiness. How the muddy path out by the old, dilapidated grape arbor down to the barn looms up in ghastly horror when they remember the asphalt or sandstone walks of the city. How they wish that in the country one could have it so arranged that they were not compelled to carry two pounds of earth to the door every time they stepped out of the house after a rain or a thaw. How they slow up at the chuck holes in the pike and remember with regret the spin they took over the asphalt drives of the city. How the chicken scratched yard fades to tatters and rags beside the well-kept lawns of the residence district referred to. How dreary the weather-beaten farmhouse at home looks beside the bright, beautiful, decorated mansion I have mentioned, and how cumbersome and uninviting the old rusty farm implements, harness and equipments appear beside the easy chairs, the soft carpets, the polished desks of the city offices. And how cheap, and slow, and common the fields look with their dilapidated fences and adornment of weeds beside the great stores and banks of the city! Oh! what privileges. And then to see their children going and coming from the imposing high schools and colleges. What a blessing John and Mary would receive to be so enviously situated.

Ah! my hearers, I want here to call your attention to some very potent facts and to some very, very wrong conclusions. First, let me tell you plainly that with very little to except in the way of mining products, that old muddy path, weather-beaten house, dilapidated fence row, fringed with weeds, and the common, cheap-looking old fields of the country have built the skyscrapers and mansions, furnished their interiors, paved the streets, propelled the trolleys, equipped and operated all the steam railways and plied the water with floating palaces, built and equipped all the colleges, the theaters and the cathedrals and filled their chairs, stages and pulpits with the brainiest of their calling. Yes, and filled the stores with their merchandise and their bank vaults with the millions of gold they boast. These are the facts, briefly mentioned. And, oh! how wrong, how false, the conclusion that makes us envy the city all or any of the treasures. advantages or privileges it holds.

If you, for a moment, have formed such an opinion as I have often heard many country people express, I beg you to stop that line of thought, for the privileges and blessings you so much desire, lie as it were at your own door. I have told you what you have done and it is true; the producer has donated every city in the land to its owners. Shame, then, to say that you can not enjoy privileges equal to theirs. I do not mean that you can build a fifty thousand dollar college or church at every cross roads, that you must build a stone mansion, that you must have a half million-dollar waterworks plant. Oh, no, but I do mean that every farmer can have nice, clean, neat walks to go about the premises on, that he can keep his fences in fair repair, that he can paint his buildings often enough to make them look well and keep them from from decay, that for very small expense he can have a home system of water for lawn and garden purposes, that he can have nice, well-kept lawns and neat, tidy gardens, with flowers and shrubbery galore; that every township in the county can have a commodious high school, that the country people can have better roads than they have, brick or asphalt if they so like, that the country people can have splendid libraries and librarians for the same; that they can have one or two good theatricals and as many lectures in a season if they will; that they can have anything their city cousins enjoy, and that they do have many, many privileges that a person in the city cannot have. Besides all this we can and do have a purer society, as a mass, in the country and are free from the thousand and one contaminating evils and vices of the city. Now I have mentioned a few things we can have. and if I can get you to think over a few of these, if I have said anything that will cause a wave of agitation in the right direction, I shall have done some good. How all these can be enjoyed by us I could tell if my time allowed. However, let me ask you earnestly in the face of these facts and possibilities, are we living up to our privileges?

HOW TO RAISE THE MORAL STANDARD IN A NEIGHBORHOOD.

By Rev. Geo. H. L. Beeman, Amesville, Ohio.

Read at the Farmers' Institute held at Amesville, Athens County, February 27 and 28, 1901.]

Character-making is more important that money-making. The highest things in life are not sowing and reaping, feeding, buying or selling. It is well that farmers' institutes, teachers' institutes and other bodies take some time, in the midst of the discussion of methods in their business or profession, for the more important matters of mental and moral culture.

In answer to the question, "How shall we raise the moral standard of a neighborhood?" it is well, first, to ask the question, "What is a moral standard?" A moral standard is the prevailing view, or model, pertaining to the conduct and spirit of men toward God, toward themselves and toward their fellowmen, with reference to right and wrong. It is the basis, test or criterion of moral excellence.

Now, it is an undeniable fact that communities differ as to their standard of conduct. One community will frown upon a thing in which another community will delight. Sometimes the objectors are wrong, but not usually so, and usually a thing is at least questionable when a whole community objects to it. Some communities have their moral sense so well developed, have such a keen sense of right and wrong, such clear views as to the leadings and influence of certain lines of action, that we say, instinctively, that the moral standard of that community is high. On the other hand, neighborhoods are found where a premium is put upon vice. Still other communities, not quite so bad, have no special abhorence of sin, yet would not knowingly encourage immorality. But people who are always saying, "Oh, the boy is young, let him sow his wild oats; he will get over it," perhaps unintentionally, yet surely, encourage crime. Those neighborhoods in which the moral sense is low, in which immorality is condoned, reap the wild oats sown by some of their people. Their better people who take no part in wrongdoing by their carelessness and neglect permit others to do wrong.

Is it the individual's duty to endeavor to raise the moral standard of his neighborhood?

Certainly there is no ordinary community which has a moral tone that can not be made better. A community is made up of individuals. It will be made better or worse by the individuals composing it. All will admit that the individual ought to care for and develop all his powers and live the highest kind of a life which it is possible for him to live. But this highest life includes great duties to fellow men. A man's first duty to his fellow men is to seek, so far as he can, to care for their being and rights. His next duty to them is to seek to improve them. It is each moral man's duty to seek to make his community better, and by influence, teaching and example, to endeavor to elevate the standard where he lives. Every man is morally bound to do for his fellow men, so far as possible, the same work of moral culture which he should do for himself—in kind, if not in degree. A writer says, "Whatever gospel a man may have for men he is bound to aid them to the possession of it." This is raising the moral standard.

How, then, shall the moral standard be elevated?

The first way is through the mighty power of education, referring here to the education of the schools, of literature, of the platform. Professor Scovel, of Wooster, has said that the final aim of education is character, "not money-making, not mind-making, not lovemaking." "It is greater to be than to know." The great end of all education is making men, in the best sense. The greatest question is not "How can we make our schools turn out smarter men and women?" but rather, "How can we make the work of our schools produce better men and women—better citizens—and hence better communities?" The sacredness of education is in that it develops character and opposes crime. All true education must aim to unfold and develop the powers of the soul. The powers of the soul which control the will and the moral nature are to be developed by exercise. Knowledge and education are necessary to man's highest mission. We must defeat the powers of darkness by the light of God's truth, whether taught in the text-book of the day school, in the good literature about us, in the open book of Nature, or in the Word of God. Education tends to develop sound judgment and good reasoning faculties. Education makes men charitable, generous, faithful to convictions, patient, enthusiastic, sincere. True education leads to moral courage, decision of character, and self-sacrifice for the good of others. So, the better the schools, the better the teachers and equipment, the better the education, the higher the moral standard. The school building should be as beautiful and attractive as the better class of homes. The schoolhouse and grounds should be one of the brightest little spots in all the district. Every school should be furnished with a library. Teachers should be paid enough to encourage them to make the best of the school work, and to make it their life work. But not only the young are interested here. Every man and woman is under duty to grow in knowledge and reap the results of moral power. Therefore no expense should be spared to put the best literature into every home. Let good lectures be delivered by educators, in every community. God has given us power to dispel the clouds of moral darkness by the sunshine of eternal truth.

A second way to elevate the moral standard, closely connected with the first one, is direct moral teaching, in the home, in the school, in the church. The education of the schools and the informing and training of the mind no doubt in themselves help the moral tone, but the great principles of man's life of duty must be directly taught by all who have influence over the life of the young. The true value of character must be taught. The greatest men in history were made great, not by wealth or high position, but by honor, integrity, conscientious devotion to duty. Reputation and praise are not nearly so important as character.

Fidelity to the smaller duties of life must be taught. Diligence and industry must be emphasized before the minds of the young and of all who make up the community. Many warnings from history might be given, showing the utter failure in store for the idle and indifferent ones. Idleness, if it became universal, would blight the surface of the earth and destroy the powers of man. A man who had been brought to a certain state prison for forgery remarked to the officer: "I never did a day's work in my life." The officer replied: "No wonder, then, you have brought up here."

Personal purity should be taught. We learn from English history that the Puritans, under Oliver Cromwell, men who kept bodies and minds pure, rode over the gay cavaliers. It was the moral rottenness of France which caused her to go down when she met Germany in the struggle of thirty years ago. The duties of keeping promises, truthfulness, magnanimity, charity, humane treatment of animals—all these should be taught.

How shall this moral teaching be accomplished? By oral work and through good reading. Teachers, parents, lecturers, have grand opportunities along this line. Good reading should be diffused. But, especially, should every high-thinking person be an example of good works. Set the fashion of honesty and high morality by being yourself faithful to duty. Remember the power of influence.

A third way to better the moral tone is through law. "What!" you say, "make men better by legislation?" No, we can not by law enactment and enforcement make men better directly, but we can make it harder to do wrong, and thus indirectly raise the standard. Just as a good moral sentiment tends to make good laws and tends to enforce them, so the stricter the laws and enforcement the less the crime, and the moral sentiment grows in proportion. Stern justice has a good moral influence upon any community. Legislation should be directed, and enforced, in every community which wants a higher moral standard, against liquor-selling and liquor-giving, against indecent shows, against prize-fighting, immoral literature and disorderly gatherings. Hear what Edward Everett Hale says: "What we want, when we say we wish we could shut up all the liquor shops, is to save from temptation people who have not formed the habits of drinking. Just the same thing is to be said as to the temptations to unchasity."

A fourth method in the matter before us is the use of religion. The best, truest and most lasting morality is taught by the religion of Jesus, and those who become lowly followers of the Son of man have the elements and spirit of all moral living wrought in them. The religion of Jesus Christ gives power over temptation; it is the best principle or life in the world to maintain and develop a true morality. The agency of Christianity is the best method of producing in our fellow men the noblest character, and true religion is a safeguard for the morality of individual and community alike. Experience has shown clearly that all plans of government, morality and education are permanently successful in helping mankind, only as they have a solid Christian foundation. Therefore let churches, Sunday Schools and all similar agencies have the warmest support, in every neighborhood, of all citizens, if they would better the moral tone of the country.

Finally, raise the standard by personal improvement. Each member of the community must raise his own moral standard. The whole is made up of all its parts. Therefore every individual who helps to form a neighborhood should cultivate his own powers. Each should have a true aim and a noble purpose in life. Each individual should steadily adhere to all the moral principles he has learned and accepted. Each one should also have regard to the question of *associates.* Let every one seek to raise the moral standard of his neighborhood by seeking a high standard of reading, of living, of dealing, and a high grade of associates, for himself. As to the last, Rev. Francis E. Clark says: "I venture to say that not one boy in five hundred ever went into a rumshop alone for the first time. He went because he was asked to go." Ah! men and women, boys and girls, seek the company of those who are wiser and better than yourselves. Seek higher and holier things for yourselves, and thus in making yourselves better, you will help to elevate the standard of morals about you. And in all things, do not neglect to study and teach the Word of God.

In these ways—through education, direct moral teaching, human law, religion, and personal effort for personal improvement—one may hope to see the moral standard of his neighborhood rise and the moral life greatly improved and clarified.

THE SOCIAL SIDE OF FARM LIFE.

By MRS. DUDLEY KEEVER, Centerville, Ohio.

[Read at the Farmers' Institute held at Centerville, Montgomery County, February 8 and 9, 1901.]

In the discussion of any subject, grave or gay, it is necessary first of all that it be clearly understood what we are talking about. I may be pardoned therefore if I begin by defining my subject. The social side of farm life does not refer merely to the various amusements and pastimes with which the people who live in the country seek to divert themselves; it has a deeper, broader significance. It refers also to the inherent, universal craving of mankind for social intercourse, that craving which is as old as the human race, and which will last as long as the race exists.

The many and various amusements and occupations which make up what we call social life, are simply the outward expression of this need, which is as universal in man as his need for air. It is stronger in some than in others, just as some people with greater lung capacity require more air to breathe than others. If the lungs are supplied with pure, fresh air, they in turn make good, red blood, and a vigorous, well-nourished body is the result; if they are forced to breathe impure air loaded with poisonous matter, the blood becomes vitiated and the whole system relaxed and weakened. Just so is it with this inherent need for amusement. Satisfy it with pure pleasures, healthful sports and wholesome books, and both mind and body will be stronger and better; but as surely as impure, intemperate pleasures, and vicious reading are indulged in, the one will be debased and the other dwarfed and debilitated. What are the heartiest and best pleasures for us and for our children is an open question and one which will be presently discussed.

Let us first establish, if we can, the truth of the assertion that the craving for social amusement is natural and right, and occasional relaxation of mind and body necessary to the health and proper development of both. History shows that a denial of this truth and an attempted repression of the natural love of pleasure, are unwise and often disastrous. The Puritans of England, under the leadership of Oliver Cromwell, declared all natural pleasure sinful, repressed everything gay and bright in dress, manners and life, and frowned upon every form of amusement, innocent or otherwise. While there was much that was admirable in their ideas of state government and in the temperance and sobriety of their lives, yet the inevitable revolt of the English people from their stern bigotry and despotic tyranny, resulted in the seating upon the throne of England of one of the most dissolute monarchs that ever ruled over a gay and extravagant court, Charles II. It was much the same with the Puritans of America. Brave, resolute and uncompromising in their principles and lives, they were just as uncompromisingly rigid and austere. They were the "bed rock" of our country; to them we owe our existence as a great nation today, but they made the mistake of trying to crush out of life all beauty, gladness and gayety. They thought only of stern duty; pleasure was sinful.

Now, if there is one maxim that is always true it is this: "All work and no play makes Jack a dull boy," and it is true of Jack's mother, father and sister as well. In order to work well we must occasionally play well. Mind and body must have rest and change, the tired muscles must relax, the overtaxed brain must have the relief of a complete change of the current of thought. Men and women everywhere are learning this, and just in proportion as it is being realized the power and usefulness of individuals and communities are being increased. You will see this illustrated on every hand. Professional men—ministers, doctors, lawyers, authors, inventors—all brain-workers, try to obtain at least a few weeks' complete rest each year, that they may work the harder the rest of the year. Mechanics, even the day laborers, in towns and cities, will work the harder six days in the week that they may have the seventh for rest and enjoyment. Who, of all laborers, are more in need of social enjoyment than farmers and their families? They work both brain and body and, in the busy season, labor early and late. And the opportunity for such pleasure is right at their doors, for where do all these workmen go for the quiet rest and pleasure, which are to strengthen and refresh them for their labors? Straight to the country where "Nature, the kind old nurse," gives them her soft grass to lie on, her grand old trees to shade them, her birds and flowers to delight the eye and ear, her waters to cool them, and her pure fresh air to breathe.

Why, then, do we country people who live in the midst of all these good things the year round, sometimes think our lives dull, and long for the noise, the dust, the heat, the turmoil, often the filth and misery of cities? I can understand how one can wish to go to the city to make money or to spend it, but for pleasure, very seldom. Why should we country people go to the city for our enjoyment? Let the city come to us. There are few games, sports or amusements of any kind, which can not be more successfully carried out in the country than in the city. The few things in which they have the advantage, such as lectures, concerts and so on, are, in these days of the ubiquitous trolley car, of comparatively easy access. For all out-of-door sports, for tennis, golf, football and croquet, for picnics, lawn parties and trolley rides in summer, for sleigh-riding, coasting and skating in winter, and for house parties, the year round, we have every advantage.

It is true they try to reproduce some of our country sports in the city, but compare their gas-lighted, overheated skating rinks and toboggan slides with the *real thing* in the country; with the exhilarating, breathless rush down the long hills and the delightful gliding over the smooth ice, while the keen air sends the blood dancing through the veins and paints the cheeks and lips with crimson. Frost-nipped fingers, toes and ears are but trifling discomforts compared with the fun of it all.

In the matter of good cheer country homes easily take the lead. Farmers everywhere, in America at least, are noted for their well-spread tables. This fact goes far to insure the success of dinner and luncheon parties on the farm. The evening companies may be just as enjoyable. There are the Hallowe'en and wax-pulling parties in their seasons, the spelling bee, which I hope will never go out of fashion, and the evening party proper, for which there are so many forms of entertainment. Impromptu charades, tableaux and games of skill, with which in this age of invention we are so abundantly supplied, and one or more of which any family may possess. There are the sewing circles and cooking clubs for the women and girls, and the society meetings for the men, and better, perhaps, than any of these, the library or literary clubs for young and old of both sexes. Every village which is the center of a farming community should have one of these organizations. It will furnish the community with good reading matter, good entertainments, and, more than all, with social life in its best and broadest sense, that social life which not only opens the heart, but refines the manners and stimulates the mind. It is such society as this that we all desire for ourselves and our children.

Let me say here that all social gatherings are the reflection of the home life of their participants. The training for society must begin in the home. It is there that kindness of heart, self-control and consideration for others, which are the foundation of all good manners, must be learned so thoroughly that they become instinctive. It is there that the taste for good reading must be instilled into the mind of the child, for to be agreeable to others one should be not only well-mannered, but well-read. It is there that the talent for drawing, painting or music is discovered and carefully trained, and the child who has a taste for mathematics or science is supplied with the food that his mind craves. To such children the various games of skill are nearly always attractive. During the long winter evenings on the farms such games are both useful and amusing. They train at once the eye, the hand and the intellect. Limited means does not prevent their enjoyment, for many of them can be made at home by the exercise of a little patience and skill, and are all the more enjoyed on that account.

Another amusement for winter evenings at home is the acting of the dramatic pieces with which all school children are familiar. When I was a child I remember that we acted in our parlor a great many of the scenes from Skakespeare, Scott, and some of the more modern poets, and the beautiful and stirring lines that we strove to interpret are distinct in my memory to this day.

Music is one of the best and most acceptable forms of entertainment, especially at home where it is a potent factor in the education of both mind and body. If dancing is objected to, there should be gymnastic exercises accompanied by music, for rhythmical movement of the muscles is the means for insuring that harmonious development which gives ease and grace of movement.

In all social life at home and abroad it is the mothers who are most interested and who should be the leaders. Not only because the mistress of the home needs such relief from home duties, but because the young people are the better for her presence and help. If the latter feel the presence of their elders an unwelcome rstraint, let the former look to it that it be not their fault. Let them keep their hearts and sympathies fresh, and their minds in touch with all that is best in the world in which their children must move.

It is unwise and unworthy of this "age of reason" to say that some amusements are all right and others all wrong. It is largely a matter of individual conscience. If we try to give our children only the best and teach them to stand by the fixed principles which we have found are the only safe guide, they cannot go far wrong. Let us teach them that temperance and self-control are always best; that gambling is bad business and worse morals, and betting dangerous, whether on croquet or cards, horse races or elections; that only the best books are worth reading and only the best plays worth seeing; that irreverance of speech or manner is a sad fault; that modesty is always womanly and courtesy always manly, and give them this for their motto:

"The wings of youth are strong and fleet,
  Fast and far they fly;
The dreams of youth are bright and sweet,
  Keep them pure and high."

THE KEEPING OF FARM ACCOUNTS.

By Eugene F. Cranz, Ira, Ohio.

[Read at the Farmers' Institute held at Osborn Corners, Summit County, February 15 and 16, 1901.]

For twenty years I have kept accounts, not all of those years farm accounts, because I had at first no farm records to keep, but the first few years I kept a record of the actual cash cost I was to my parents. I had no fixed income, nor anything to invoice, but the record was kept, merely because it seemed to be a good thing to do. From this small beginning as a boy twenty years ago, I have enlarged and modified my system until for some years past my method has been very satisfactory to me. Saying this much by way of opening, I may be pardoned for adding that I come, not as one "having authority," but as having had some experience.

We are apt to get the notion that an accurate and systematic record of farm accounts can not be kept without the training given at one of the many so-called "business colleges" or "commercial schools." Such a training has much value and should not be underestimated. I have myself had five months of such schooling, and consider the experience well worth the cost and effort, but I do not now use the system of bookkeeping learned there. Why? Because the double-entry system, with its journal, ledger and cash book, three separate books, is more difficult and cumbersome for me, than the simple and easy single-entry system, which I use at the present time. There are three things that should be faithfully considered in keeping accounts, whether it be farm accounts or the bookkeeping of any other business, and these are the invoice, the cash received and the cash paid out. By the neglect or incomplete record of any one of these a true and accurate statement of your business and financial standing can not be obtained from your books. I want to place special emphasis on the importance of taking an invoice at the beginning of each year. Before I finish this paper I hope to be able to show why it is so essential to do this. My custom is to take an inventory about the first of January of each year. How? By making a list of every thing of any value that I may own, and carrying out in dollars my estimate of what it is reasonably worth at that time. I try to make the value about what it would bring at a public sale. In making this inventory, I would advise you to begin with the horses and live stock, and make it by name or number, so you can tell which amount stands for any horse or cow you have; hogs and sheep may be put in lump lots. Go on in the same way through the farming tools and implements, and also the estimated value of all hay, fodder, corn, oats and wheat, whether you intend to feed them or not; they are on hand and have value, therefore they should be put down in the inventory. Then if you care to invoice the household goods, put them down also. Then if you hold any notes and credits, cash on hand or in the bank, add them all to the list. Now, value your farm, your land at so many dollars per acre or as a whole. Add up all the items and see what amount you have. In case you have any debts, make a list of them to the last dollar and cent you owe. Subtract the debts from the sum of the inventory. Now, you have three items that you want to keep until another inventory is made one year hence, and they are: First, the value of all your property, both real and personal: second, the debts, and third, the difference.

Let us suppose, now, that you have made an inventory, plain and clear on the first few pages of a new account book, ruled in what is called journal ruling, and are ready to go on with the bookkeeping through the year. Every one doing business handles some money, and the things you want to know and should know are how much money you take in and what you sold to bring it in; how much you pay out and what it was paid out for. And you want to know these things each month and each year, not part of it, but all of it, every dollar of it. We keep books to know our business, not to guess at it. On January first, on the top of a new page, a few pages after the invoice, write "Cash received, January, 1901." let us say, and on the opposite page write "Cash paid out, January, 1901." The first item you should make on the cash-received page is cash on hand January first, which should equal cash actually on hand then: as anything is sold that brings you money put it on that page with the date, and carefully note what was sold and carry out the price. In the same manner on the opposite page make a record of the things money was paid out for, and try to be careful and accurate. Then at the end of the month add up both sides and take the difference, which should be exactly the amount of money you have on hand, and this should be entered on the new page as cash on hand February first. It is my custom to begin on new pages the first of each month, because it looks so much better, and each month is on pages facing each other, where they are handy to refer to, which I frequently have to do. In this way go on through the year, making a balance at the end of each month.

So far this may seem as though all that was necessary at the end of the year would be to add up the sums at the bottom of each month, but there are a few things that may enter to prevent this from being an accurate result, such for instance as when something is sold and the money is not received at the time of sale, or when something is bought when the cash is not paid at the time of purchase. It is my custom to put such items on separate pages because I want a record of the transactions, and it will not do to put it down as cash received or paid out until I actually receive or pay out the cash, as the case may be. To get the actual income and expense for the year I take the net footings each month and put them on a page by themselves, adding them up at the end of the year. By net footings I mean to throw out such accounts on the page as do not actually represent farm income or farm expense. If you keep accounts a few years you will find that such items will quite often occur. Suppose now you come to the end of the year and figure up the income and expenses. The first essential thing to be done is to make a new inventory for the new year. Now take the old inventory and compare it with the new, compare the debts and also the balance after subtracting the debts. I think, if you have faithfully kept your books, you will very often be surprised at what these figures show, and I will venture to say that your farm income will be considerably larger than your estimate of the same would have been. However, if your inventory shows less, and your debts are more, and such a state of affairs continues for a number of years, I hardly know what will become of you. It is high time you were trimming your sails, for if you do not you will get somewhere in the region the cat did that got into the well and climbed out two feet each day and fell back three feet. But if you mean business in your farming and in keeping your accounts your books will not show such bad results, and then you will feel as did the little boy who was habitually late at school, and again and again admonished by his teacher not to be so late. One morning, however, he surprised his teacher as well as himself, by getting to school bright and early, and, feeling the importance of the event, he went up to the teacher with a smile of delight spread all over his face, and said: "Now I am before at last, I always was behind before."

You may wish to keep individual accounts with certain persons for certain reasons, and it is often well and advisable to do this, but I believe it to be good policy to run all your business through your books as a general account, and then transfer the individual accounts from that to separate pages. You should keep an accurate account with all your hired help. We are keeping individual accounts with each of our four children, and we have done so ever since they were born, and hope to be able to continue to do so until they become of age. We want to know how much money it is going to cost us to bring up our children. We also keep a special account with our cows. It is my opinion that not enough of our farmers keep an accurate record of their business. I can say that I know it pays, actually pays, and besides it is a source of pleasure, and then there is a great deal of genuine satisfaction in the work of doing it and in the results. It is true, some things come up during the year to ponder over and to figure out. The figures do not always come out just exactly right; then if I can not find where the error is, I must enter an item, as "gain" or "loss" to balance.

It is good policy to name the articles bought or sold and not put too many things in one item and call it simply "sundries." Sometimes it may do to save space and figures to group a number of unimportant articles in one item as sundries, but if used too freely for large amounts, it might create suspicion on the part of your wife, who ought at all times to have access to your books. I would not do it that way. I would call every item by the right name. I want to tell you a story, which is said to be a true one: George was an only son and was studying to be a doctor; he had been to medical college one or two years, and the father who furnished all the money thought George was spending almost too much. So, when he started for college the next year the father asked him to keep an accurate account of all his expenses. The son promised to do so, but when he got to college he forgot all about his keeping accounts until a few days before he was to go home, when he recalled the promise to his father, so he sat down and tried to recall what all of his generous allowance had been spent for. It was said that he asked freely and that his father freely gave. George could remember how much he had spent for board, tuition and books and a few other things, but all together there was not more than half of what he had spent, and in order to make his expenditures equal what his father had sent he put down several items as sundries. A few days after George got home his father asked for his account book and after carefully looking it over he saw some big items called "sundries." Now the old gentleman did not know what sundries meant, so he called George and said, "George, what is this sundries?" George tried to explain what it meant and what it stood for but his father could not comprehend and finally he looked up and said: "George, that 'sundries' is putty expensive stuff, aint it?"

I think it is good policy for young people to get into the habit or rather practice of keeping accounts and records not only of their financial transactions but also of what they have done and thought during each day. I have kept a diary or journal, a record of what I have done each day for twenty years. I do not suppose these records in themselves are of much or any value, but the practice and training in expression of thought and writing during all those years. and doing it each day or nearly every day, has been of enough benefit to more than repay for the time and effort. It is in the line of doing something to train the mind to enjoy some of the good things in life. Some of those enjoyments and pleasures the most of us are striving for, the things that wise old Solomon said are worth more than great riches or silver and gold.

LITTLE THINGS.

By H. J. Brooks, Richwood, Ohio.

[Read at the Farmers' Institute held at Marysville, Union County, January 30 and 31, 1901.]

In these days of wonderful achievements along all lines of human effort, we become so accustomed to thinking only of the great accomplishments, the large enterprises and the big things generally that we lose sight of the many "little things" with which we, as farmers, are more nearly concerned. We read of gigantic combinations of capital that are able, not only to control manufactures, mining and commerce but to influence to a great extent the policies of our government itself. We read of wonderful discoveries in the sciences and of still more wonderful achievements in the arts, and almost feel that we, also, must accomplish something equally great or life with us will be a failure. The greater the feats we perform the stronger becomes our desire to do things still more wonderful, thus we allow ourselves to be led on and on till we meet failure complete or find ourselves occupying a position bordering on the absurd.

In Washington's time they bled the sick man to death thus preventing his dying of disease: later, they cured him, sometimes, with medicines, while now it is said they let him die, then by injecting a few quarts of weak brine into his veins they bring him to life again stronger and heartier than ever, thus nullifying the death penalty. A few years ago people were satisfied for the time being when they had learned how to send messages over long distances by means of a wire with suitable instruments attached; now they can do the same thing, thanks to Marconi and others, and let the trust keep its wire. But progress in this direction does not stop here, as some of our scientists have ambitions that seem to reach out far beyond the limits of this little world of ours and contemplate the conquest of other worlds of which we know but little. Nicola Tesla has recently declared that, through the instrumentality of his discoveries and inventions, we shall soon be able to communicate with the inhabitants of the planet Mars millions of miles away!

Thus the world goes from great things to greater, and let it be understood we have no disposition to find fault with ambition and a spirit of progress, provided good judgment and a pure motive are allowed to guide and direct them.

But this is not always the case as history proves. There has been more than one Napoleon and more than one St. Helena. Many a nation is now known only in history because of a misguided ambition, and many a farmer, once comfortably situated, has lost all by mortgaging a small farm in order to rent a larger one. "Let your aim in life be high," is a motto often quoted and its age if nothing else secures for it consideration and respect, but we should be very careful not to aim higher than the game to be secured, or at something that is beyond the range of the gun we shoot with; the best trained soldiers, we are told, aim low. We may have our ideal placed very high on the side of yonder mountain, but the path that leads to it lies along the ground and many are the pitfalls and little difficulties to be met and overcome before we can reach the coveted prize. In other words we should not think so much of the end sought that we lose sight of the many little things that enable us to gain that end.

I fear we sometimes get the big round dollars so close before our eyes that they completely shut off our view of the many little nickels and dimes that might be so much more easily secured. All great structures are composed of many separate parts, some of them perhaps may be very small, but each part however insignificant it may appear when alone is just as essential in its way as any other part of the whole edifice. We read of the monster gun recently constructed by this government for the defense of New York harbor capable it is claimed of hurling its twenty-three hundred pound bolt of death and destruction to a distance of more than twenty miles! We read and think of the possibilities of such an engine of destruction, yet no matter how ponderous or perfect it may be in all its parts, the results depend, in a degree at least, on every little particle of the one thousand pounds of powder used in its discharge.

So it is in nearly every undertaking of any magnitude in life, and especially is this true in the life of the farmer. He may form his plans as carefully as any one could, but some unforeseen change in the season, some insect enemy or, perhaps, some little mistake on his part may ruin all.

I well remember an instance of this kind that happened in my own experience and at a time too, when even a partial failure of my plans was keenly felt. As a renter I had secured an excellent piece of ground for corn and had already built my "air castle" with that prospective corn crop as a foundation. The land, some twenty-five acres, was well plowed, harrowed, marked out and carefully planted with a hand planter; then I waited for the corn to come up. While waiting I thought of the old proverb which says, "All things come to them who are willing to labor and to wait." I had labored long and hard and was now waiting, but the corn failed to come.

Finally the thought occurred to my mind that the "all things" spoken of in the adage could not mean worthless seed corn; the air castle began to tumble and I began to hunt good seed corn—something that would grow fast and ripen early—but this was no easy task as nearly all my neighbors had experienced the same difficulty. Thus did my plans fall far short of my expectations, and all because I had failed to give proper attention to, perhaps, the smallest thing in the whole undertaking—the little germ in a grain of corn. The lesson was a costly one for me, but it was well learned and never since then have I failed to have a sufficient quantity of thoroughly dry and sound seed corn on hand when needed.

While on the subject of seed corn let us notice one point that apparently many farmers never think of: The modern corn planter does not count the grains for each hill, it measures them, or in other words it deposits that number whose combined bulk just fills the seed cavity or hole in the feed plate, hence the importance of selecting ears having grains of a uniform size and shape discarding all grains that do not conform to the standard you have chosen.

It is not only these little details in the production of a staple crop that profitably claim our attention, but there are many other apparently small matters, as they are sometimes called, that astonish us when their real importance is known. The poultry interest is one of the industries greatly undervalued by the average farmer, yet statistics show that it is one of our greatest sources of revenue.

Bradstreet places the value of poultry and poultry products in this country for the year 1900 at four hundred and forty-six million dollars. Secretary Patch of the National League of Commission Merchants recently stated in a speech in Cleveland that the sales of eggs alone in the United States for the past year amounted to two hundred million dollars, and of dressed poultry one hundred and fifty million dollars more, leaving another sum of the same size to represent the value of the poultry on hand ready for another year's business.

These figures are almost beyond belief, yet they come from very high authority and should lead some of us to look upon that "pesky old hen" and her interesting family with a greater degree of respect. Did anyone present ever know or hear of the farmer who was opposed to "fooling away his time on trifles," and who dogged and clubbed and otherwise illtreated the "tarnal chickens" all summer, and then, in the fall, called on his better half for some of her poultry and egg money, which she had saved after buying all the groceries and most of the clothing, to help him out on his taxes?

If farmers would keep an accurate account of all poultry and eggs both used in the families and sold from the farms for the period of one year, many of them would be greatly surprised at the sums so found.

The same may be said in regard to many other little things that are often regarded as unimportant, such as fruits, berries, vegetables from the garden, etc., all of which not only contribute to the enjoyment and health of the family, but often yield a surplus which can be disposed of at a price that will more than cover the cost of all. Doubtless it will be urged that while all these things may be nice, or desirable, or even profitable with some, they all require more or less time and labor to produce. Certainly they do for we know "there is no excellence without great labor," and ever since the day God cursed the ground for Adam's sake, the farmer at least has had to eat his bread in the sweat of his face. The man who is too lazy to work should never think of becoming a successful farmer, but should turn his attention to—well, something else. The farmer who has his work systematised as it should be, will usually have plenty of time to look after the many "little things" as they present themselves, and to give to each, in turn, the attention its importance demands. "Plan your work and work your plan," is a grand motto to remember and to follow in any business; it will save time and trouble and lead to greater success.

I know there is nothing new in all this, but it seems as necessary now as in the days of Isaiah, "For precept upon precept, precept upon precept: line upon line, line upon line; here a little, there a little." Our failure to reach a greater degree of success than most of us do, is not caused so much by a lack of knowledge as by a failure to properly apply what knowledge we already possess. Knowledge simply lends the power, or shows the way, while execution brings results. If ignorance can be charged with the loss of millions, negligence must be held responsible for the loss of tens of millions.

We attend these institutes, read our papers and study our books for the purpose of increasing our knowledge of things that pertain to our calling, yet are profited only to the extent to which we apply what we have learned.

Let us then, learn all we can and make some good use of what we learn. always remembering that a wise person has said, "Despise ye not the day of little things."

MAN'S DEPENDENCE ON NATURE.

By Miss Estella M. Brown, Franklin, Ohio.

[Read at the Farmers' Institute held at Franklin, Warren County, February 18 and 19, 1901.]

"What would the learned writer of the old geography of sixty years ago, say to the statement that the whole earth is one vast farm, everywhere covered with vegetation bringing forth crops of the most luxuriant and varied kinds?" This question propounded by a modern writer certainly implies a condition very far from his idea, as we were informed that at least one-fourth of the earth was little more than one vast desert.

As a matter of fact, nothing could more widely misrepresent the truth than such a description. The imaginary deserts are fast shrinking and dwindling away before the face of the explorer.

Man has brought under cultivation about one-tenth of the land, all the world over. But the remainder does not lie idle, with but few exceptions it is covered with crops of one sort or another, for the world is a green world not a brown one. But where crops are grown year after year, century after century, no matter whether they be wild or not there must needs be tillage.

When Captain Head traveled nine hundred miles across the Pampas in South America, he saw to his surprise, first, one hundred and eighty miles of the most luxuriant clover, then an unbroken stretch of long grass of four hundred and fifty miles, with scarcely a weed, finally, growing up at the foot of the Andes a grove of low shrubs and bushes. Man had no hand in preparing the soil for this grass and clover; man had neither cared for them in any way, nor sown them. Yet there they were, just as good food for his cattle as if they had been grown on the most highly cultivated farm. Surely, then, the land of the Pampas had been farmed and most successfully, too, for the word farm is said to be derived from the Anglo-Saxon verb, which means to supply with food.

Man grows for himself and his live stock a few vegetables, about two hundred and fifty species, and he has adapted to his use and partly domesticated about two hundred animals, but there are not less than one hundred and forty thousand plants grown in the world, and the animal kingdom contains some millions of species. With so many animals to feed and so many crops to grow, nature's farm laborers do not allow of deserts and wherever there is an unoccupied surface they hasten to take possession of it and sow something upon it. Even in the little heaps of dust which collect in sheltered nooks, on church towers, on walls, in the angles of masonry, they scatter seed and make them bear at least a blade of grass, and often quite a crop of various things. Generally speaking, it is only by recent lava fields and the loftiest peaks of rock that these energetic laborers are baffled and then only for a time. They are such zealous and thrifty husbandmen that they are constantly on the watch to occupy every inch of space where anything can be grown the moment it is vacated, and even before. They will overrun our gravel paths, grow grass in our streets if allowed, and they will take a very short time to convert the most highly cultivated garden into a wilderness, without any trace of a path in it, if it be given over to them.

Wonderful things, no doubt, are being done with machinery and the time may come when we shall be able to grind up the rock without too great an expenditure of time and labor; but even then powdered rock is not soil and will not grow anything worthy of the name. It must be mixed as well as powdered before it can be converted into fertile soil, and this is constantly being done by nature. We might well wonder if we knew nothing of the subject, how it could ever be converted into a surface, fit for the support of vegetation. Yet there may be vineyards close by, showing that it has been done in other instances. Steel plows, even if driven by steam are quite useless here. Man must wait patiently until the work is done for him as it will be by nature's laborers, and very thoroughly too, in the end. "By the combined efforts of the gases and moisture of the atmosphere, by heat and frost, wind and rain, by rivers and streams, by glacier and volcano, the rocks are gradually split up, worn away, and reduced on the surface to a condition of softness."

These laborers, whose work we are now going to consider, are somewhat rough in their ways, and not such as the farmer generally cares to see at work upon his land. For when he has taken possession of the beds of soft earth ready prepared for him, his plows and harrows come in very useful, and he is of the opinion that he can manage the tillage of his fields himself. Nature, however, has no steel plows, and her fields must be tilled by other means, for she works in all parts of the farm giving man a vast amount of help, for which he is not often as grateful as he might be, for at present he and nature do not entirely understand one another.

Some of man's richest land owes much of its fruitfulness to the long-continued services of these laborers. Every now and again there has been a prairie fire, laying waste wide tracts of land, but leaving a large supply of ashes behind; and of the value of ashes the farmers of Flanders have so high an opinion that they say, "He who spends nothing on ashes, is sure in the end to pay double." Season by season, too, leaves have fallen, animals have died and decayed, adding their remains to those of countless generations.

Most of the richest soils of the world have been mixed, either by the work of rivers or by other means to be considered by and by; and besides being mixed, they have been in many cases transported from situations where they were comparatively useless to others where their good qualities can be turned to the best account. The richest soil in the world is of little value on a lofty mountain top, for none but lowly plants can stand the cold and exposure.

When we consider the best corn-producing regions of history, our thoughts naturally turn to Egypt, once the granary of the world. Egypt is the gift of the Nile. The soil which produces such abundant crops, has not been produced by the decay of rocks upon which it rests; but is a mixture of soils brought down, in great part, from lofty mountains, hundreds of miles away. The top of this chain of mountains is a table land upon which the rains descend heavily, during three or four months of the year, the fall being so abundant as to supply five mountain torrents, which rush down the sides of the mountains with the force of cataracts, and carry with them enormous quantities of rock, which is ground up into the finest mud and poured into the Nile. This rises so much in consequence, that it overflows its banks, inundating the plains of Egypt, and wherever the flood goes, it leaves behind it a thin film of rich mud, which needs but little preparation on man's part to make it produce abundant crops. The whole of southern Louisiana, with its extensive cotton and rice fields has been made in like manner by the Mississippi, which becomes a dense, yellow torrent after it is joined by the Missouri, and brings down with it a heavy load of mud from mountains three thousand miles away, which it deposits in some places to a great depth.

Almost tne whole surface of every moderately damp country is covered with a fine, dark, vegetable mould; it is only a few inches thick at most, from four or five to perhaps twelve inches; but no matter what the nature of the soil underneath, there it is. One may see it in railway cuttings or on the top of any bank be it chalk or sand, and this black earth has been rendered rich, to a very large extent by the work of worms. The plow is one of the most ancient and valued of man's inventions, but long before it existed the land was regularly plowed and still continues to be plowed by earthworms, which are continually about this work over very nearly the whole world, reversing the earth's crust, turning it over and over, as the plowman does, only much more slowly, and much more thoroughly, morsel by morsel, grain by grain. And the earthworms' work has another advantage over that of the plowman. It is not only more thorough, but it can be, and is carried on even while the crops are growing, and without any material injury to them.

Gardeners and farmers hate the worm, but they would find the earth without worms would soon become cold, hard, void of fermentation, consequently sterile. They prepare channels through which the roots of plants are able to spread with ease. Plants evidently prefer, when they can, to take advantage of ready made passages, and worm burrows, which have been in existence some time, are usually found lined to the very end with roots. Roots of red clover have been found running down six feet or more into the ground by means of these holes. The longer the root the larger the surface with which it is brought into contact, and the larger the supply of food it can extract.

It is much the same way with the harrows, they cannot do the work of the great natural harrow, the frost, which crumbles the soil, grain by grain, till it is reduced to the condition of dust and ashes ready for sowing.

Now surely, the farmer may put in his seed and feel that if only seasonable weather be granted him, he may be independent of further help. Not unless he is prepared to pay a whole army of boys to keep off marauders; and even then he would probably find himself worsted with slugs. snails, and grubs, for these creatures have an especial fondness for seedlings. As for the grub, its very name is enough to make the farmer shudder, for it is in the grub state that an insect is chiefly mischievous, as this is its grand eating time. It will eat anything in the way of vegetable food. To help him in the perpetual war which he must wage with these foes, the farmer has friends, the birds.

We are learning more and more to see that they are not only useful, but actually indispensable. A fierce battle wages around the sparrow. He is accused of stealing corn, wheat, fruit, etc. In some districts he is persecuted without mercy and leads the life of an outlaw. Sparrow clubs kill him by the thousands and destroy his nests. That he is mischievous no one can deny; that he sometimes does serious damage must be admitted by all. However, his friends, the naturalists, say that each sparrow actually saves one bushel of corn, for he lives for nine months of the year almost entirely upon grubs, while his family eat absolutely nothing else but insect food as long as they remain in the nest.

One pair of sparrows, it is said, takes four thousand three hundred grubs or other insects to their young in the nest in the course of a week.

Finally, we are told that caterpillars to the number of three hundred and fifty-four billion are eaten by sparrows ever year, and that while we see the damage which the birds do during three months of the year, we do not see how hard he works for us during the other nine or what far greater danger he averts from us.

To some extent birds are protected in Europe, but we do not seem to have learned our lesson yet, for though we are beginning to wake up to the immense value of the feathered tribes as guardians of our fields, we are still only beginning.

We have considered how man is assisted in the cultivation of his fields by those who labor not with hands—by air, wind, frost, rain, snow, volcano; by the worms and others which plow the soil, by the birds which keep the insects in order. These and many others are at work constantly in the fields which man has taken under his own care, as well as in those still left entirely to nature. Together they would keep the world green if there were not a man in it; for they are quite able to do without his help in the matter, though he would be entirely helpless without theirs.

NATURAL SCIENCE IN RURAL HOMES.

By Miss Laura Alice Bacon, Prairie Depot, Ohio.

[Read at the Farmers' Institute held at Prairie Depot, Wood County, January 23 and 24, 1901.]

As we enter upon this new century we hear much about the wonders that the past hundred years have achieved. Marvellous they are indeed, these revelations in the world of science and invention, such as our forefathers would have deemed nothing short of miraculous if not wholly impossible. Yet wherein lies the wonder? Have any new forces been created? Has anything really been added to the universe? It is rather a deeper human knowledge of the cosmic forces that rule the world, a clearer understanding of nature's immutable laws, a little deeper delving into her hidden secrets, that have wrought these miracles of the nineteenth century. Nature and her laws have not changed and never will change. Through all these profound conceptions of the human mind, beneath the complex and intricate mechanisms it has so wonderfully constructed, we inevitably come back to the original superhuman forces of nature as the source of power. There is a point in every scientific field beyond which human knowledge can not go; every avenue of research, if followed through its devious ways to its very source eventually leads beyond the natural to the realm of the supernatural, to the old incomprehensible laws which man can neither make nor unmake. Nor with all his ability, with all his skillful manipulation of these forces, has he been able to construct so complex or so delicate an organism as some of the simplest of nature's children.

The anatomy of the common house fly shows an intricacy of workmanship, a nicety of adjustment and operation beyond the power of man to reproduce. The blade of grass that grows upon our lawn, or the pebbles that line its pathway, were planned and wrought out in a workshop more marvellous than that of any modern scientist. The scent of the hound tracking its master through the crowded street exceeds in its wonderful sensitiveness even the operations of wireless telegraphy, that most incomprehensible of modern discoveries. It is only because we have always been so familiar with this mysterious world of nature that we often fail to appreciate it. Excepting the mind of man it is the grandest thing in the universe, and when once our eyes are opened to behold its beauties, it is of absorbing interest. We who live in the country, near to the very heart of nature, are especially privileged, but how prone we are to neglect these privileges! When we see a tree we are so apt to see simply a mass of green leaves above a gray trunk, unconscious of any difference between the graceful sweeping branches of the elm with their delicate foliage, and the compact sturdy oak, with its short branches and large, glossy, deeply serrated leaves; or between the beautiful maple, whose artistically shaped leaves swing lazily on long slender stems, and the smooth-barked mottled beech with its chubby leaves that rustle so merri'y as they dance about in the wind. There is as much difference in the qualities and appearance of the various trees as there is in the character and faces of our friends, and it is just as easy to see these differences as not to see them, if we will only look with our mind as well as our eyes. Then the beautiful flower world opens before us a most fascinating volume. The delicate coloring of the blossoms, their varied shapes and sizes; the peculiarities of their foliage and their manner of growth, make them a subject of ever-increasing interest. Most of our wild flowers have a common name by which, at least, we can learn to identify them, though the pleasure and profit is immeasurably greater if we spend some of our spare minutes learning from a botanist the names of the general classes and orders with something of their characteristics. In this way we can easily learn to identify any new plant, ascertain whether or not it is poisonous, and if it is a pernicious weed to be carefully exterminated, only a harmless plant or a valuable medicinal or food source. Those long names in the botany may at first sight seem appalling, and such close observation impracticable if not impossible, but it is largely a matter of acquaintance and habit. I know of a little boy in California, not more than three and a half years old, who was riding one day with his father and gathering flowers on the way. He suddenly pointed to the roadside and said, "There is a new flower, papa; let's stop and get it!" "Oh, no," the father said, "we've seen plenty like that today, I think." "No, no," little Arthur insisted, "that's a new flower, not like any of the others." To please him, the father stopped and gathered it, and sure enough, it was different from anything the boy had ever seen. If a child, not four years old, in the midst of the myriads of flowers of California, could distinguish a single unfamiliar blossom by the roadside, surely we of mature years can learn to be as observing.

How many of us hear in the glorious burst of song that wakens us on a spring morning, the familiar voices of our feathered friends, or does it mean no more to us than the blowing of the whistles and the rattle of wagons in the street? The friendly twitter of the sparrow, the melodious notes of the robin so different from his usual saucy chirp, the mocking voice of the catbird, the passionate tones of the thrush and meadow lark that seem to piece the very heavens in their jubilant ecstasy, even the persistent notes of the blackbird, like a recurring chord in music, with perhaps rising above them all the clear flute-like whistle of the Kentucky cardinal—all these and many more unite to form the harmony of nature's beautiful matin service. Each voice in this jubilant chorus is the index of a charming little personality. Later in the day we may see these same songsters busy with their task of nest-building or food-gathering for the faithful mate or hungry birdlings. If we are fortunate enough to live near a wood lot we may occasionally catch a glimpse of the beautiful tanager with his brilliant coat of scarlet and black, or the shy bluebird or oriole, with others too numerous to mention. Most of these birds respond quickly to kindness and gentleness, and with a little pains may become quite tame, although they always wisely flee at the approach of that useful friend of the farmer, the barn cat.. We will find constant surprises awaiting us as we study the general and individual characteristics of this bird life, their habits and unerring instincts, and it will prove a great source of amusement and delight to the children, and may teach them acts of kindness instead of cruelty toward these innocent and beautiful creatures.

Closely allied with the birds, but even more wonderful and varied, is the insect world with its great opportunities for original research. If we look upon the bugs, millers and even worms that so annoy us, as wonderful bits of mechanism, whose every disagreeable characteristic was created for some especial purpose, they will lose much of their repulsiveness. Every tiniest bit of protoplasm, endued with animal life, has some function to perform in the world, either good or evil, and the more we know about these strange creatures the more easily we can deal with them. This is one of the most practical of all nature studies to the farmer, and on that account is doubly interesting. Also the fact that so many of the wonderful transformations that are hidden in the higher forms of life are here revealed to the seeing eye lends a fascination to the study.

To us who live in this oil field the subject of geology possesses an unusual interest. Where and how did the oil originate, why is it found in a certain kind of rock and in no other, and what is the significance of the different strata that lie above it? These and similar questions serve to stimulate our interest. Then there are the hardheads and boulders that we often see, and the little fossil shells imbedded in bits of limestone that we occasionally find in our rambles, even the very soil that we walk upon with its wonderful qualities of productiveness—all these come in for a share of our attention. There is a certain satisfaction, too, in this day of rapid changes, in the contemplation of these solid unchanging rocks, the product of bygone ages, and there is an element of grandeur in their stern repose.

From this our thoughts naturally turn to other planets than ours, to the countless worlds about us extending into limitless space, and the vast systems that control them, and we are moved to exclaim with the Psalmist, "What is man that Thou art mindful of him!" All true nature study leads up inevitably to this point, a realization of the infinite power and omnipotence of the Creator, before which the finite mind must bow in adoration. From nature to nature's God is but a step, and few men are so hardened but they are at times moved by the silent influence of His handiwork. It appeals to the highest, the noblest, the best in man's being. It is his mind and soul that raises man above the brute creation and makes him but little lower than the angels and whatever tends to the development of these faculties fulfills the highest purpose of creation.

Aside from its intellectual and ethical value this investigation into the secrets of nature is of great practical importance. In all branches of the science it helps us to distinguish the good from the evil, the helpful from the hurtful, in a word, to best utilize nature's material and adapt it to man's end. Experience is the farmer's mascot, but side by side with it stands observation and knowledge. If the farmer understands that certain soils are best adapted for certain crops, and why, he can avoid the risk of unfortunate experiments; if he knows why his cherries or plums decay before they come to maturity, or why his apples are small and knotty, and knows something of the insect that works the mischief, he will understand better how and when to fight the evil. It is along these lines that the Government Experiment Stations are doing such a wonderful work. Their investigations are carried on in every department of natural science, and the results will be sent to any one for the asking. A most interesting example of the practical value of their experiments has recently been shown in connection with fig culture in California. That state has never been able to produce figs of as fine a quality and flavor as those from Smyrna, though more than twenty years ago slips were brought from the latter place to California. When the trees came into bearing, the fruit always failed to mature. It is known that ever since before the Christian era it has been the custom of the fig growers of Smyrna to hang branches cut from the wild or Capri fig trees in the cultivated trees at a certain time of the year. Therefore cuttings from the Capri figs were next imported by the United States Department of Agriculture, but owing to the peculiarity of figs in that their tiny blossoms are wholly inside of the thick outer covering or skin of the fruit, pollenization could not take place unaided. By introducing the pollen of the Capri fig into the cultivated ones with a small quill, it was found that they would ripen and possess the peculiar nutty flavor of the Smyrna fruit, but such hand pollenization was impossible to any great extent. The next step was to introduce the pollenizing agent of the Orient, a tiny insect that lives in the wild fig and, covered with its pollen, pierces the skin of the cultivated fruit and thus enters and fertilizes it. After many unsuccessful attempts and the greatest care, this valuable little insect was made to live and propagate in our Western state, and the result has been most satisfactory. Last year California was able to place upon the market figs of a larger and better quality than those from Smyrna and even more rich in that fine aromatic flavor that heretofore has given Smyrna figs the first place in the markets of the world.

Probably none of us can follow out any of these branches of science to the end, and that man is rare indeed who can master them all, but we can each know something at least of every one of these open books of nature and see the beauties and the vast possibilities that lie therein. Fortunately our public schools and agricultural colleges are doing much to establish a love for the science of nature in the children and youth of the land, and it is the glorious privilege of parents to further foster and develop it. Books and papers upon its varied subjects are numerous and easily accessible, and we can lay the foundation for the intelligent observations that may be snatched in the intervals of our summer duties, during the long winter evenings, the farmer's vacation time. Thus we may make, not only the busy summer life of the country a life of rare interest and development, both spiritual and intellectual as well as practical, but the long evening hours of winter as well will be filled with delight and profit, and we can say with the poet Cowper:

> "I crown thee king of intimate delights,
> Fireside enjoyments, home-born happiness,
> And all the comforts that the lowly roof
> Of undisturbed retirement, and the hours
> Of long uninterrupted evening know."

TAXATION.

By **Winfield S. Mundhenk**, Dayton, Ohio.

[Read at the Farmers' Institute held at Centerville, Montgomery County, February 8 and 9, 1901.]

Governments are organized mainly for the purpose of bettering the social, mental and physical condition of their subjects. Another purpose in the formation of all governments should be the political freedom of each and every subject. This last aim and purpose is not always attained even by the best-regulated and liberal governments of the world. Probably the most noted example is the oppression of the people of Ireland by the English government, yet they pay into the treasury of the British empire their just proportion of taxes and assessments and share little in the expenditure of the same. The condition of the people of that overburdened isle can be attributed largely to the system of taxation or "rentals," as it is so termed, for in England the land belongs to a few, consequently they have their landed aristocracy, while here in free America it appears that the bulk of the money belongs to a few persons, and we are fast approaching a "moneyed aristocracy." In this we are certainly most unfortunate, and it appears to me that the unequal distribution of wealth brings misery to countless thousands. Corporations and trusts, with their millions behind them, have their representatives upon the bench, in the General Assemblies of the respective states, and in the Congress of the United States. The uniting of wealth in the form of corporations and trusts is certainly not for the benefit of the consumer of the commodity or article of commerce controlled, as the price of such article or commodity rises in nearly every instance. That there is a remedy for this condition of affairs there can be no question. Some system of taxation ought to be devised that would reach out and compel these corporations to pay into the treasuries of state, county, township and municipality their just proportion of taxes for public improvements, the education of children, and the enforcement of the very laws under which they operate. However, it is not my purpose or inclination to discuss the merits of this question in the short time allotted to me.

Taxes in a general way may be divided into two classes, direct and indirect. Indirect taxes are those levied by the general government. These are of two classes, duties upon articles imported into this country, and internal revenues, derived from the manufacture and sale of liquors, tobacco and many other articles. From these sources money is obtained for the support of our government, and we pay of this amount a sum in proportion to the amount of such articles bought and used by us as individuals, and consequently we hear little complaint in regard to our national system of taxation. But of direct taxes we hear more. These taxes are collected by levies made upon the total valuation of state, county, township and municipality, and are made for the purposes of public improvements, such as public buildings, public highways, etc., for common schools and state universities, for the making of laws and for the payment of officials who enforce them. The appraisement of real property is made every ten years by citizens elected by the people residing within their district, whose duty under the law is to appraise said realty at its true value according to law to the best of their ability. There appears to be a very general opinion among all classes of citizens that real property should be appraised at only one-half or two-thirds of its true value. Such is not the law, and I believe that most of the complaints in regard to excessive valuations arise from this opinion. If each and every assessor of real property in the state would strictly follow the law the appraisement would be uniform throughout the state and there would be no just cause for complaint except as to errors that might arise in a clerical way.

But the law recognizes the fact that even in the same county there will be differences of opinion as to the true value of property, and has wisely provided for a board of equalization, composed of the county commissioners, the county auditor and the surveyor to equalize the valuation between the districts and also between individuals, but they can in no case reduce the aggregate valuation of the county, although they may raise it. In our own county the board, after careful consideration and due deliberation, has seen fit to lower the valuation, as assessed, of no township, and has raised the valuation of but one, upon which an addition of 16 2-3 percent was placed upon the valuation as returned by the assessor. No action was taken in the matter of individual complaints, which will be taken up and passed upon when this same board meets in May of this year as a board of revision. The city of Dayton has a separate board, composed of six citizens and the county auditor. Owing to the short space of time in which their work must be completed they were only able to equalize the valuations in about one-half the wards of the city, which work shows an increase over the valuations as returned by the assessor. Their work has practically been a reappraisement of all the property in the wards which they have completed. Their work will be completed by them as board of revision at the same time that the county board is in session.

An abstract of the valuations as returned by the assessors and as equalized by both county and city board of equalization has been compiled and filed for use with the state board of equalization, which is composed of the state auditor and one member from each senatorial district in the state. The state board will in no case deal with individual cases and can not reduce the aggregate valuation of the state as returned, although they can raise it. Its duties will be to equalize the valuations among counties and cities. It is not difficult to see that the task is not an easy one, as no doubt each member of the state board will want to unload an excessive valuation in his district upon some other district whose representative also desires a reduction, but if the state board acts fearlessly in the matter of readjustment of the valuation between the counties the valuation will be uniform over the state, and no one will suffer by reason of an excessive tax rate. If the valuation throughout the state is high and uniform the rate of taxation will be low, and on the other hand if the valuation is low it necessarily follows that the tax rate will be high. So we see that the most important point in the appraisement of real property is uniformity.

Personal property is listed for taxation every year by persons elected by the people of each township, ward or precinct as the case may be. All personal property is supposed to be listed for taxation with the exception of one hundred dollars exemption allowed the head of each and every family, usually consisting of household goods. As I said, all personal property is supposed to be listed for taxation, which is true, yet many persons escape the listing of money through a defect in the law. It is done in this way: Money on deposit in bank, subject to check or draft on the first Monday of April of each year, is subject to taxation. Many persons who desire to evade the law draw out their money in bank subject to check or draft and redeposit it, taking a certificate of deposit, which is not subject to check or draft and which, under the law of Ohio, is not liable for taxation. I give this information, not with the expectation that any of you will take advantage of it, but only to show you what means are resorted to by some knowing ones to avoid the listing of personal property.

The taxes for state purposes are levied upon the total valuation of the state, both personal and real. For 1900 as follows: For general state purposes, 1.4 mills; for sinking fun, .3 mills; for common schools, 1 mill and for state universities, .2 mills, making a total of 2.9 mills for all state purposes. The amount collected in the different counties for the support of the common schools of the state is paid into the state treasury, and then distributed to the respective counties, regardless of the amount paid in by said counties, but is distributed per capita upon the enumeration of school youth between the ages of six and twenty-one years. This method of distribution costs Montgomery county almost seventeen thousand dollars a year, as we pay into the state treasury a sum greater by that amount than we receive. Then how important that members of boards of education use the utmost care in taking the enumeration of school youth, as every one missed loses one dollar and fifty cents to the township or district, as the case may be, and that amount is passed to the credit of some other county and is lost forever. It appears to me that this plan of distributing the school funds of the state is radically wrong and should be corrected by the general assembly of the state. The question is and has been discussed by nearly every organization or society interested in a reduction of taxes, but has never assumed any definite form for presentation to the state legislature. The amount paid by Montgomery county to other counties for school purposes if saved would be equivalent to a reduction in valuation for state taxes of six million five hundred thousand dollars.

Another source of income for the common schools of the state and little understood by the general public was provided by the framers of the ordinance of 1787, which set aside one section in every original surveyed township, the income from which is to be used for the education of the youth of said original township. The section set apart was numbered 16. If this section happened to be taken up, and a grant from the general government given to private individuals for it, then the people of said original surveyed township had the right to choose any other section of said township that was not taken up, but if all the sections had been taken up and grants given for same to individuals, then the residents could choose any other section in any other township that there was no grant for. In this way several of our townships have land in different counties. These lands were placed under the control of a board of trustees and can be sold only by a two-thirds vote of the people. As long as the land remains unsold the rentals derived from it go to the support of the schools of said township, but when sold the principal is deposited in the state treasury and is used in the payment of the reducible debt of the state, for which the state pays and distributes through the county auditors to said township a sum equal to six percent interest upon the principal deposited with the state. This payment is made once a year and is distributed at the February settlement of each year. Said lands, so long as they remain unsold, are not taxable, only the improvements that may be placed upon them. The remaining source for raising revenue for the support of public schools is by local boards of education by levying a certain amount upon the total valuation of the district over which they have jurisdiction. The levy for local purposes is limited to 7 mills, except under certain conditions relating to townships or districts supporting high schools. For a township or district to levy an amount greater than the general statute provides requires a special act of legislation. Township and corporation taxes are levied and collected in the same manner as local taxes for school purposes. The universal complaint is that taxes are too high, and in many instances they become a burden, but as long as beneficial improvements are made and the money collected is honestly and economically expended by honest men we ought not to complain.

THE POINT OF VIEW.

By Guy A. Robinson, Unionville Center, Ohio.

[Read at the Farmers' Institute held at Marysville, Union County, January 30 and 31, 1901.]

Some years ago a traveler was descending the Alps, and as he was plunging merrily along over the slippery rocks, suddenly he heard music. He describes it thus: "It was clearer than any piano note, finer than any strain of violin, more resonant than any peal of bells, richer than any organ swell, sweeter than any human voice. We instantly looked up to the huge mountain wall which rose abruptly two or three thousand feet half a mile to our right. The music came from there. Again and again we heard it. It was only the echoes of the huge Alpine horn. A mile down the path we came upon the bugler, who stood at his big wooden instrument, the flaring end of which fitted into a box which opened out like a hopper. It was there only a loud rasping noise. We hurried away, wondering how the rocks could transform such sounds into music. It all depends. We had come from the right direction; had been caught at the proper angle; were at 'The Right Point of View.' We only heard the echoes."

It is said that sailors can hear the chimes of the New York church bells on Sunday morning one hundred miles out at sea, by placing their ears at the proper angle so that the sound may be reflected from the hollow sails. Whether or not they shall hear and what they shall hear depends entirely upon their being at the proper angle. Likewise one's ideas of farm life depend largely upon "the point of view."

Our "point of view" is that of a boy whose life so far has been, and perhaps always will be, spent upon the farm. Charles Dudley Warner says: "One of the best things in the world to be is a boy; it requires no experience though it needs some practice to be a good one." He also says: "About as soon as you get used to being a boy you are something else."

Every once in a while you see an article in a farm paper headed, "How to Keep Our Boys on the Farm." Perhaps the best way would be to render farm life less distasteful.

To a young boy a very little thing often seems a mountain, especially at about the age of nine or ten. If he goes out with his father to cut wood he uses the dull ax or the one with the splintered handle. If he hoes in the garden his hoe is the one with the weak handle. If he objects he is told to work with almost anything, that he can't earn his salt anyway. If he liked the work before, think how he enjoys it now after this wise speech of his father.

You know a boy is generally paid for his work in orphan lambs, which are to be his, if they live. Very often the lamb dies, for when it reaches the boy's hand it is always about done for, but if any one can save that lamb an American boy can do it. And so he goes to work. He feeds that lamb everything it will eat, it is even kept in the dooryard, where it has free access to mother's pansies and sweet peas. Jack is building air castles. He takes his lamb money as a foundation and builds on and up, step by step, and when his castle is complete he has a herd of shorthorn cattle, winning right and left, all out of his lamb money. But when father sells the flock he is hard-hearted enough to shove Jack's share down in his own pocket. Jack's lip drops, his coat sleeve seeks his eye; this softens father's heart a little. "Well, Bub, you have been a good boy this summer and I did treat you a little mean; but I'll tell you, there's that long-legged sorrel colt—he hasn't been wintering well. You can have him." And so Jack's face brightens. He goes to work and feeds and cares for Dick and he grows into a fine driver. Jack thinks that next summer he will have a horse and buggy with the rest of the boys. But in the spring Jack's colt takes the eye of some city boy, and Dick goes like the lamb and the money goes like the lamb money. His driver vanishes into an old work horse with collar marks all around his neck, and his rubber-tired buggy into an old open buggy with plenty of music, and he goes down the road at what Jack calls a church trot. "No, no, you can't put me off with your Jersey calf. I've had enough." And then and there Jack resolves to leave the farm. Is it any wonder that Jack envies the city boy? Is it any wonder he dislikes farm life? Can you blame him?

The country boy sometimes thinks that city business men have an easy time of it, but he is mistaken. A noted business man in a city was once heard to say, "I wish I were a farmer so I would not have to work so hard." There is a mental fatigue as well as a physical which perhaps the farmer does not experience. He works hard and is tired at night, but he sleeps well and the next morning is like a new man, while his city brother's brain is overworked, his sleep broken and restless, and he begins the next day's work tired.

The farmer has the advantage of his city brother in many ways unless that brother is wealthy. No other man who must support a family on a moderate income can have so many holidays. He can afford it, because his income does not stop, for hens lay, cows give milk, crops grow, even on Sunday, and the winter months are a half vacation, at least to the man whose stock is warmly sheltered and the food under cover, as is mostly the case now. Then especially has the farmer time to read, and he generally improves it. Now the farmer's children generally have a well-stocked library. They can obtain a good education as well as the city boy or girl, for the country schools are being improved. Although many a Lincoln has obtained an education without schools we sometimes wonder how it is done. Longfellow tells us:

"The heights by great men reached and kept,
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night."

But education has become a necessity. Ruskin says: "There is an education, which in itself, is advancement in life." No one knows what he may some day be required to do, and the more complete a man's education, the more able is he to accomplish whatever he undertakes. The old idea that any one could farm is banished. Nowadays the educated farmer is necessary and the farmer is a necessary being. One half of our population depends directly upon him. If the farmer did not raise the supplies, how would city people live? Therefore the farmer comes nearer actual creation than any one else. Then it is an honor to be a farmer.

Daniel Webster said, "When tillage begins other arts follow. The farmers therefore are the founders of human civilization." And how true it is. Did not the farmer pave the way for manufacturing and commerce? The first-settlers of a country are generally farmers. The first thought of a settler is to obtain a living, and, as all foods are of the ground, farming is his calling. This has been true from the beginning. Let us see:

"In the beginning God created the heavens and the earth. And God created man in his own image. And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat." But Adam and Eve sinned, and therefore the Lord God sent them forth from the Garden of Eden to till the ground. Henceforth man was to earn his bread by the sweat of his brow. This, though pronounced as a curse, has been turned into a blessing, for history, the world over, says that the progressive nations have been the toiling, busy ones.

And so we find that civilization was planted in the great river valleys of the East by the overflowing streams, the Ganges, Indus, Tigris, Euphrates and the Nile. The Star of Empire moved westward, and westward the Japhetic race moved. In America, as in no other place, has the Japhetic race succeeded. It took perseverance to plant civilization here, but the Pilgrims were well suited to this rough county; they had grit and succeeded.

We know what our country is today, and that the farmer is the hub, others are the spokes of the wheel. "Other arts follow tillage." If a wall could be built around the United States so strong and so high that we would be shut out from the world—or rather the world from us—the only ones who would suffer would be those on the outside.

In the advancement of the world, the United States plays a prominent part today. Civilization in America, as nowhere else, presses closely upon the heels of departing savagery. The stolid Indian in blanket and paint, stares at the railroad train—"heep wagon, no hoss"—that invades his old hunting ground: the gang plow turns the sod of the prairie, the gang saw devours the giants of our forests. Countless herds of buffalo, which roamed the West less than a generation ago, have given place to cattle sufficient to furnish beef for the tables of New

England and Old England alike. Deserts of fifty years ago are irrigated orchards and gardens today. The sage brush and cacti of the last decade have given place to the grape vine and orange trees of this. And now, even in far Alaska, the streets of Skagway are lighted by electricity, a first-class central station having been installed by an electric light and power company.

"The rudiments of empire here
Are plastic yet and warm;
The chaos of a mighty world
Is rounding into form."

Josiah Strong says: "A hundred years ago the United States had only six cities of eight thousand or more inhabitants; in 1880 it had two hundred and eighty-six, and in 1890, four hundred and forty-three." A hundred years ago three percent of our population lived in cities, now about thirty percent. Strong ascribes this movement toward the city to necessity, and gives three causes:

1. The application of machinery to agriculture. A special agent of the government reports that four men with modern agricultural implements now do the work formerly done by fourteen. Inasmuch as the world can not eat three or four times as much food simply to oblige farmers, it means that only a limited number can obtain a living by farming, hence some are forced to abandon farming and are forced into cities.

2. The springing up of factories in the cities to produce agricultural implements and a thousand other things, create a demand for labor, and attract the laborers who are driven from the farm.

3. Railways make it easier to transport food, so that now any number of millions may be massed at one point. Formerly local famines were frequent; now they are impossible.

I quote again from Strong: "It will not be long before urban population will largely predominate over rural in the United States, and in due time we shall become a nation of cities."

But after all the farmer is the best contented, for a ship at sail is more steady than one at anchor, and when we ask whence have come our great men, Emerson answers thus: "The men who are the center of activity, the drive wheels of trade, politics and industrial arts; the women of beauty and genius are all the children and grandchildren of farmers."

But farm life is not all hollow or all glory. The farmers have ups and downs, too. "It all depends." The turmoils of the world are translated into music, like the harsh sounds of the Alpine horn, if we stand at the proper angle, if we approach from the right direction, if once we look from "The Right Point of View."

THIRTY-FOURTH ANNUAL REPORT

OF THE

OHIO STATE HORTICULTURAL SOCIETY

FOR THE YEAR 1900.

Organized in 1847 as Ohio Pomological Society.

45 A

Ohio State Horticultural Society.

OFFICERS FOR 1900.

WM. MILLER, President	Gypsum, O.
W. N. SCARFF, Vice-President	New Carlisle, O.
W. W. FARNSWORTH, Secretary	Waterville, O.
N. OHMER, Treasurer	Dayton, O.

EXECUTIVE COMMITTEE.

E. H. CUSHMAN	Sylvania, O.
R. J. TUSSING	Canal Winchester.
W. J. GREEN	Wooster.

Also President and Secretary.

LIBRARIAN.

W. J. Green	Wooster.

AD INTERIM COMMITTEE.

First District—W. G. FARNSWORTH	Waterville, Lucas County.
Second District—ISAAC FREEMAN	Tippecanoe City, Miami County.
Third District—J. C. BEAR	Dayton, Montgomery County.
Fourth District—T. A. JOHNSON	Gypsum, Ottawa County.
Fifth District—F. H. BALLOU	Newark, Licking County.
Sixth District—E. G. COX	Bradrich, Lawrence County.
Seventh District—M. E. SWEET	Kirtland, Lake County.
Eighth District—H. H. AULTFATHER	Minewa, Stark County.
Ninth District—E. H. BRAWLEY	Amesville, Athens County.
Tenth District—C. L. WHITNEY	Warren, Trumbull County.

COMMITTEE ON ENTOMOLOGY.

F. M. WEBSTER	Wooster.

COMMITTEE ON VEGETABLE PATHOLOGY.

A. D. SELBY	Wooster

COMMITTEE ON SAN JOSE SCALE LEGISLATION.

J. J. HARRISON	Painesville.
W. H. OWEN	Catawba Island.
E. M. WOODWARD	Kirtland.
W. N. SCARFF.	New Carlisle.
W. W. FARNSWORTH	Waterville.

CONSTITUTION

OF THE

OHIO STATE HORTICULTURAL SOCIETY.

1st. The Society shall be known as the OHIO STATE HORTICULTURAL SOCIETY.

2d. Its object shall be to select and disseminate information relative to fruits and other horticultural products, and to promote the taste for horticultural and rural embellishments among the people.

3d. Its officers shall be a President, Vice-President, Secretary and Treasurer, who shall, in addition to their official duties, constitute a board, empowered to fill all vacancies that may occur during the year by death or resignation. They shall be elected annually, by ballot, and hold their office until their successors are elected, but the Secretary shall not enter upon the dutis of his office until the first day of August following his election.

4th. The President shall preside, and conduct all meetings of the Society, and in his absence the Vice-President shall perform the same duties.

5th. The Secretary shall record all doings of the Society, perform all correspondence, and with the assistance of the President collate and prepare the annual report and other matters for the public press.

6th. The Treasurer shall collect and hold all funds of the Society, and pay out the same only on the order of the Secretary, countersigned by the President.

7th. The membership fee shall be one dollar a year, payable in advance, and any person can become a member of the Society by forwarding the fee to the Secretary or Treasurer. All delinquent members shall be notified by the Secretary not later than February 1st of each year, and shall not be entitled to the annual report of the proceedings of the Society until their dues are paid. If the dues are not paid before January 1st, following, their names shall be stricken from the list of membership.

8th. There shall be an Ad Interim Committee, consisting of the officers of the Society and ten other members, residents of different sections of the state, representing specific districts, to be elected annually, whose duty it shall be to observe and takes notes of new and rare fruits, the fruit crops, and other matters of interest to the Society during the season, in their several sections of the state, and report the same at the annual meeting of the Society. It shall also be the duty of the members of this Committee to solicit membership to the State Society, and to encourage the establishment and promote the interests of local Horticultural societies in their respective districts.

9th. The annual meeting of the Society shall open on the first Wednesday in December of each year, at such place as may be designated by a vote of the Society, notice of the time and place, together with the order of exercises to be sent in due time to each member by the Secretary. At this meeting the President will be expected to deliver an address, and the report of the Ad Interim Committee, Standing Committee, Secretary and Treasurer, shall be read, and the usual business transacted, besides papers and discussions on horticultural topics.

10th. There shall be an Executive Committee, consisting of the President, Secretary and three other members of the Society, to be chosen by the President, which committee shall have general charge of the affairs of the Society.

11th. This constitution may be amended, and by-laws may be adopted for the government of the Society, by a vote of two-thirds of the members present at any regular meeting.

At the Annual Meeting held at Newark, December 6th-8th, 1899, the following amendment was unanimously adopted, viz:

The President of the Ohio State Horticultural Society is hereby authorized to appoint a commission of three, which committee shall make provision for the proper nursery inspection, providing no action shall be taken by the State Legislature.

STATE FAIR MEETING.

The State Fair meeting of the Society was held at the Grange Hall, on the Fair Grounds, Thursday evening, September 6, 1900.

In the absence of both the President and Vice President, the Secretary called the meeting to order, and Mr. S. R. Moore was asked to preside. The chair appointed the following committee on New Fruits, viz.: Prof. W. R. Lazenby, C. W. Montgomery, and B. F. Brown.

The Secretary suggested that the committee examine and report upon any new or valuable fruits on the exhibition tables in Fruit Hall.

The Secretary then read a letter from Prof. Wm. Taylor, U. S. Assistant Pomologist, in regard to an exhibit at Paris.

The matter was discussed at length, after which, on motion of Mr. C. W. Montgomery, the Secretary was authorized to procure and forward five barrels of apples for exhibition at Paris.

L. B. Pierce suggested that the premium list of our Society be increased by the addition of six seasonable varieties of winter pears.

The Secretary said he thought the Horticultural Society was entitled to a representative on the State Board of Agriculture.

Mr. Corwin asked that the State be divided into two districts for competitive purposes.

On motion of Mr. Woodward, the following committees were appointed to revise the premium list: E. Rhodes, J. C. Bear, and W. W. Farnsworth on fruits, and L. B. Pierce, C. W. Montgomery and F. E. Carr on vegetables and flowers.

There being no more business to come before the Society, the meeting adjourned.

REPORT OF COMMITTEE ON FRUITS.

Your committee appointed to examine the new fruits brought to the attention of the Society at the State Fair meeting, beg leave to report as follows:

Mr. W. B. Mills and W. H. West, of Chillicothe, exhibited two apples called by them Johnson's Keeper. One of the apples was of the crop of 1899, and had been kept in an ordinary cellar. It was in a good state of preservation. The other specimen was of the crop of 1900. The variety appears to possess no remarkable qualities, except that of good keeping.

Mr. J. C. Bear, of Dayton, Ohio, exhibited an apple, probably a seedling, that was found growing in a nursery East. The fruit is of small size, light yellow color and very sweet.

Emmel Rhoads, of St. Paris, Ohio, exhibited two specimens of fall apples. One resembled the Western Beauty or Fall Rambo and may possibly be that variety. The other was a medium sized, early, bright red apple of good quality. As far as could be judged from a single specimen, this apple is worthy of propagation.

Your committee wish to express its appreciation of the fruit exhibit made by the Experiment Station, regarding it as one of great interest and of special educational value.

WILLIAM R. LAZENBY.
CARY W. MONTGOMERY.

PROCEEDINGS

OF THE

THIRTY-FOURTH ANNUAL CONVENTION

OF THE

Ohio State Horticultural Society,

HELD AT

TROY, OHIO,

December 5th, 6th and 7th, 1900.

President Cushman called the Convention to order in Assembly Hall of the Court House, at 2 o'clock p. m., Wednesday, December 5, and announced that the session would be opened by instrumental music, provided by the local Society.

Thereupon, the Convention was entertained by music.

The President: Gentlemen—I have prepared the following list of committees for the different exhibits and business:

Committee on Vegetables—

R. J. Tussing,
H. H. Aultfather,
W. R. Lazenby.

Committee on Fruits—

W. G. Farnsworth,
J. J. Harrison,
C. W. Montgomery.

Committee on Business—

E. M. Woodward,
F. H. Ballou,
C. C. Sterling.

Committee on Membership—

W. N. Scarff,
J. C. Bear,
John Pierce.

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen, Fellow Members of the Ohio State Horticultural Society:

The recent changes and advancement in horticulture make it necessary for such organizations as ours to take up new lines of effort.

The personnel of our membership is also undergoing a change. True to this law the work we have been doing the last few years has differed greatly from what our predecessors were occupied with, so we must expect to move on in new lines if we wish our organization to attain its greatest usefulness.

It seems from my point of view that the leading effort of this society for the last few years has been to secure proper legislation bearing on the restriction of certain plant diseases and noxious insects. It is apparent to all that this is a work of no mean proportions. To solve such a problem as this must necessarily require the very persistent efforts of all horticulturists and the combined energies of this and kindred organizations. There is no success without a struggle, no fine fields and fruits without a clearing and preparation. We have been clearing away the doubt and hesitancy not only of our own minds but of others not as directly interested as we are. We now have some laws ready for execution. I think we may congratulate ourselves that the last does not fall to the province of this society. There is, however, in this connection, a great deal of responsibility resting upon us.

It is our duty to render every support possible in the execution of these laws. If they are defective and now that there is actual experience in their enforcement, changes are needed, then it is our duty to assist in securing proper amendments. Collectively and individually as members of this society we can do much to prepare the public mind to see that the execution of these laws are for the public good. Everyone is exceedingly interested in this matter and I bespeak the most careful consideration for the reports bearing on this subject.

It must be apparent to all that one of the most effective methods of imparting information is that of the exhibition. The display of nature's products, especially that of plant life under favorable conditions, is one of the highest sources of information. No argument of mine is necessary to support this statement. However, I do urge upon this society and each member of it to take interest in and support horticultural displays wherever made. They advance the commercial and educational interests greatly. It is a matter of regret that Ohio fruits could not have had an Ohio Centennial to be shown at. If we can win favorable comment abroad for Ohio apples, will it not be wise for us to make better planned efforts at home?

It is apparent to those who are interested in the horticultural department at the State Fair that there is a lack of proper interest shown by the management of that department. There should be a man at the head of our interests there who is in accord with the spirit and letter of horticulture and the exhibition and exhibitors. Now that our tried and true friend of horticulture, Mr. Ohmer, is no longer in control of this department, we all note the lack of interest there and it is the remark of many that something should be done. This society should make an effort to get some kind of authority over that department. I wish to call direct attention to the exhibits of fruits at the State Fair made by Prof. Green in the name of the Ohio Experiment station.

Prof. Green has developed the best educational exhibit of fruits it ever has been my pleasure to view. I think it a very valuable way to expend a portion of the station funds and I can see no reason why these exhibits could not be given a greater publicity by showing in other places than the fair at Columbus.

Prof. Green needs an assistant in his department, someone who can be expected to carry on the more active operations and give Prof. Green opportunity to get out more among us and yet feel that the active work at the station is being properly carried on. The horticultural interests at the station and in the state are increasing and I feel that it is within the province of this society to use its influence toward obtaining the addition of an assistant in the horticultural department.

We see opportunities for increased effort on every side, but are greatly hampered for the lack of funds. We can use double the amount we are now getting to good advantage and I fully believe if that amount is gone after in the proper manner it can be obtained. We are receiving only enough now to keep the society running. It seems as though it would be wise to make an effort to get an increase in our appropriations so that the society can extend its work in fields now opening before us. Why not place this matter in the hands of a committee for special effort.

Our society is the recognized head of horticulture in Ohio, and is looked to as such. The growing commercial importance of fruit culture is being studied now as it never has been before. If we are to give the aid we should more funds are required. There has been a committee at work to secure a room at the state house for our headquarters. I fully believe it is time for this society to begin to think of the feasibility of a secretary who can give nearly or all of his time to the horticultural interests of the state, and that we should begin to consider the question of reorganizing along these lines. I can not say advanced lines, for this state is hardly abreast of other states in these matters.

Surely if we can organize so as to have a secretary who could give all his time to the interests of horticulture, with a permanent location and headquarters at the capital, it would be a great advance over the present methods of conducting our business. I believe these changes can and will be accomplished if we set about it in time. Horticulture demands more than ever before and now is the time to set about obtaining its full share of attention and protection.

Gentlemen, I have in the foregoing brief remarks tried to bring before you some of the suggestions which have presented themselves to me as your president. I fell that it is possible and necessary that we look into the feasibility of these suggestions and see what can be made of them. Their further consideration I leave in your hands confident of their proper disposition.

I would recommend that as much of the business of the society as possible be referred to committee so that we may be able to enjoy the papers and discussions as much as possible.

Past experience and the general energetic efforts of our good friends of the

Miami Valley, chief of whom is Brother Pierce, give confidence that this meeting will be on a par with any we have ever held. I know the good men are here to give their aid in making the meeting interesting. Let us characterize this 34th annual session by making it one of good feeling. Let loose the strings of geniality, and with the surroundings of music, fruits, flowers and intellect, we can all go home refreshed with the experience of these sessions.

Fellow horticulturists, I thank you for the confidence placed in me during the year, and I hope to see prosperity and honor come to the society and you in years to come.

Mr. Woodward: It seems to me that the suggestions of our President should be accepted by the Society. Therefore I move you that he appoint a committee of five to take into consideration the recommendations presented in his paper.

Motion carried unanimously.

The President: The next order on the program is the report of the ad interim committee. I therefore take pleasure in calling upon the first member, Mr. W. G. Farnsworth, of Waterville, Ohio. It has been suggested that we ought to have a limit to the discussions in this meeting. I call attention to this matter. If anyone wishes to make a motion to that effect at this time, it will be in order.

Mr. Bear: I move that the discussion be limited to five minutes, and that five minutes more be given in case the President grants it.

Professor Selby: I second the motion.

The President: Five minutes to each person on any subject?

Mr. Ohmer: Mr. President, before you put that motion, I want to say that I should certainly vote against it. As a rule there is not too much said upon any subject.

Mr. Bear: You did not get all that I said in the motion. I said with the privilege of five minutes more with the consent of the President. That will give each member ten minutes, if necessary. Now, I have attended these meetings and always there are a great many questions brought before this Society that we haven't time to discuss, simply because there is too much time given to other questions.

The President: Gentlemen, you have heard the motion of Mr. Bear, that the discussion on any subject be limited to five minutes with the permission of five minutes extra if the President sees fit to grant it. That is giving the President a little more power than he likes to exercise.

Motion lost.

AD INTERIM REPORT OF FIRST DISTRICT.

BY W. G. FARNSWORTH.

Mr. President and Members of the State Horticultural Society:

In reporting for the Northwestern part of our State I can say that the fruit crop in general has been about an average one, some varieties falling below the average, while others were a large crop.

The season was very backward, frost remaining in the ground and preventing digging or setting plants or trees until about the 10th of April. Then we had very warm and dry weather, so much so that by the first of May all newly-set plants and trees were much in need of rain. On the mornings of May 5th and 10th we were visited with white frosts that were quite heavy, yet seemed to do but little damage to fruit buds and blossoms, yet they froze back the early potatoes that had ventured too far above the mother earth. Again on May 7th a severe hail-storm swept over a narrow strip of country about Toledo, damaging all tomato, cabbage and other plants that had been set out in open field, and injuring the fruit crop by breaking the buds and blossoms from the branches. One peach orchard of several hundred trees was stripped of nearly all its fruit, and many of the branches were so bruised that the gum extended from them in many places, and they bore but very little fruit.

As to insects and diseases, we have had our full quota. The currant worm and curculio were on duty as early in the season as usual, and seemed to be more troublesome than usual, and more difficult to destroy. The canker worm is doing a vast amount of damage in my section. Many orchards that have been attacked by them for several years are now nearly dead, and many are being cut down and grubbed out, while there are but few young apple orchards being planted to take their places.

The strawberry crop, where the plants were properly mulched, was very good, while on plants that were not protected with a mulch, the crop was not as large as usual, and prices were fairly good, averaging about $1.25 to $2.00 per bushel.

Raspberries were about an average crop, with prices around $2,00 per bushel, the Cumberland and Gregg bringing the best price.

Currants were a large crop with low prices. The acreage planted this past season to small fruits was about as usual, and most plantations have made a good growth and promise well for season of 1901, though there are some of the strawberry plantations that have been seriously injured by the wire worm destroying the newly set plants by eating through the crown, thus causing many vacancies. One plot of my own of six acres, I was obliged to replant three different times and then to set all of the good plants from the six acres onto four acres about the middle of June to secure a good stand of plants. I noticed that where a plant had been set too deep it was always killed by the wire worm, and where set too shallow it was seldom injured by them. A disease of the currant made its appearance in a small plot of my neighbor's. I sent Prof. Selby some samples of diseased plants. He reported on them, stating that it was tuberculosis of the currant. My neighbor dug out the entire plot and I trust we have nothing to fear from the disease, but will keep close watch for it in the future.

The plum crop was not large in our section, as most trees of bearing age were much injured by the winter of '98 and '99, and were not in condition to produce a good crop. Many that set fruit failed to mature it, and died before fall, while some few ripened their fruits and then died before frost.

Cherries were a large crop and prices good, from $2.00 to $3.50 per bushel.

The Montmorency and English Morello bearing very heavy crops of perfect fruit where properly jarred and sprayed and cultivated. The peach crop was large, nearly every tree of bearing age being heavily loaded, even trees that were nearly killed by the winter of '98-'99, set full of fruit, though many of them died before the fruit was fully matured, as did many plum trees. Elberta still took the lead in the orchard and market, and bore great crops, but were not overloaded as much as were the Crosby and Kalamazoo.

The early and medium early peaches were of good size and color, and brought good prices, but the later ones, such as Kalamazoo and Smock, were quite small, even on trees that had been well trimmed and cared for.

On September 11th we suffered severely from a hot drying wind which caused much fruit to drop, and seemed to dry up one side of the fruit that remained on the tree so that it was shriveled and dark.

I noticed on the trees in the south row of the orchard that many of the leaves were dry and dead, as though scorched by fire.

The apple crop was large, and on trees that were sprayed and cultivated properly the quality was very good, they being smooth and of good size, and brought good prices. Even the windfalls, of which there were many, owing to the wind storm already spoken of, seemed to sell well, and brought from 25 cents to 50 cents per bushel. Pears of some varieties, such as Keiffer and Bartlett, bore heavily and brought from 50 cents to $1.25 per bushel. Grapes were a small crop and brought a better price than in '99 but were of very little profit to the grower. Good growing weather continued very late in the fall with no frosts to kill squash, tomato or potato vines until October 17th thus allowing all plants, trees and vines to mature their wood perfectly before freezing weather, and be in good condition for the season of 1901.

The President: Mr. Albaugh, representing the Second District, is the next committeeman to report. I introduce Mr. Albaugh.

AD INTERIM REPORT SECOND DISTRICT.

MR. ALBAUGH.

The report on successful fruits for my district for 1900, especially the larger tree fruits, is short and not very sweet. Apples were as near a failure as we have had for many years, yet we got a few apples from the yellow transparent trees and a moderate crop from the Wealthy. This last-named apple is one of the very best fall apples, both for dessert and for culinary purposes. By the way, fall apples are as profitable for market as winter apples, and in most cases more so. No peaches, few pears except the Keiffer, but a good fair crop of sour cherries. Don't everybody plant large Keiffer orchards, or you will destroy the demand, and when you do plant, put some other variety with Keiffer to properly fertilize them. In one of our Georgia orchards we planted ten thousand Keiffers in a solid block. They are now eight years old, large and fine trees, but no fruit. We are pulling out half of them now, to make room for Elberta peach trees. On another of our Georgia farms we planted one thousand pear trees, two-thirds Keiffer, and one-third Le Conte, intermingled. These all bore a full crop this year, and bore full in 1898. A friend of mine planted fifteen hundred Bartletts in Virginia. They bore nothing till a third of them were top-grafted with another variety. For my district, the best three cherries, in order of ripening, are Dye House, Early Richmond and Montmorency. In 1899, after a winter of 28 degrees below zero, the Dye House and Montmorency bore a full crop.

The growers of small fruits got good remunerative prices this year, though the crop was not very large. Among the newer varieties of strawberries the Nick Ohmer holds a prominent place.

The Kansas, in black cap raspberries, is gaining constantly in favor. It is of strong, robust growth, and the berries are all that could be desired. Loudon is coming up among the reds. Eldorado, blackberry, shows up each year, handsome, glossy and good, and Ohmer has lost none of its merits by continued trial.

In my district, before a good crop of the large fruits can be expected, we must plant more young orchards—apple trees, thirty, forty and up to fifty years old, as generally seen on our farms, can not be depended on to produce heavy and profitable crops. N. H. ALBAUGH.

The Secretary: Let me take this occasion to renew this request, that all papers, as read be handed in to the Secretary. I want to make a special effort this year to get our report out more promptly than ever before, and I can do it if you will do your part by favoring me by handing in the papers promptly.

The President: We will next listen to the report from the Third District, by Mr. Shirer.

AD INTERIM REPORT THIRD DISTRICT.

BY MR. A. SHIRER, DAYTON, OHIO.

The crops the past season were good, bad and indifferent. That is, while one grower had a fair yield, his neighbor's were poor. Especially was this true of strawberries, raspberries, blackberries and grapes.

Gooseberries and currants were somewhat injured by the late frosts.

Cherries, a fair crop. The Montmorency undoubtedly stands at the head for culinary purposes. In our section we only know of one variety of Montmorency. Peaches none. Killed during winter. Plums rotted badly. The Richland is growing in favor for an all-purpose plum. Apples very scarce. Pears, outside of the Keiffer, a slim crop.

A full dinner pail does not necessarily mean a flush pocketbook for the horticulturists. The home market prices were a shade better, but those who shipped strawberries obtained lower returns than ever.

Perhaps our Northern friends treat our strawberry shipment like we handle their grapes sent into our midst. We have a class of unscrupulous dealers in our city who are always anxious to sell some article cheap. This fall when grapes were 14 cents a basket at the commission houses, some dealers retailed them at 12 1-2 cents per basket. We can well imagine what effect such a transaction will have upon the grape market.

It seems to me the time has arrived when horticulturists should resolve to ship no more goods on commission. The railroad managers once said we are neither "educational, religious or political." But the railroads must confess we are quite a factor financially. The shipping promiscuously here and there on commission swells the revenue of the railroads at the expense of the grower and honest commission man.

INSECTS.

Insects were about as numerous as usual. Melons and pea vines were considerably injured by lice.

It seems that the worm in the late sugar corn is on the increase. From five to ten full developed worms on one ear is no unusual occurrence. Some say there are a few San Jose scales in our district.

FUNGOUS DISEASE.

During April, May and June we had very little lightning and thunder. July, August and September gave us an unusual amount of thunder showers. These showers were accompanied with extreme heat. Can not report the exact temperature, for the thermometer was too short. Had occasion to go on the roof of the porch. I discovered that the heat was intense. Procured the thermometer and leaned it against the house on the roof of the porch. In a few minutes the mercury was at the top of the tube—122 degrees. How much higher it would have gone if the tube had been longer I do not know. Grape rot appeared in the fore part of July. Some vineyards were almost a total failure. The few summer and fall apples decayed very readily.

Late nutmegs and pickles almost a complete failure on account of the blight. Even the ironclad turnip was greatly injured by some fungous disease.

Celery rusted badly. In spite of this general disease, pear blight seemed to be less numerous.

RECOMMENDATION.

It does seem to your committee that the time has arrived for our society to make a desperate effort to have a stringent law regulating the sizes of all packages in which fruit and vegetables are offered for sale. And more especially so should we awake when some of our sister states have such a law in practical operation.

We used to hear a great deal of wildcat money. Still there are some wildcats in Ohio. How strange that the measures used in the public market in one county dare not be used in the adjoining county. For instance, in one city the peck measure is 11 inches in diameter and 5½ inches deep. In the adjoining county the regulators adopt a peck measure 9 inches in diameter and 8 inches deep. Such regulation is about as bad as wildcat money.

Barrels and baskets are of all sizes and shapes. When a man orders a barrel of apples by telephone, he does not know whether he is going to get 2, 2½ or 3 bushels.

Great deal of fruit is repacked into smaller packages and then disposed of as full measure. The consumer then talks about the dishonest horticulturist. If we had less state sovereignty and more United States jurisdiction, it would be a blessing to both producer and consumer. If Congress gives tables of legal weights and measures, the United States should see to it that such regulations are everywhere put into practical operation. Let us not cease our agitation until we get rid of some more wildcat schemes, and compel both producer and dealer to be honest, at least in appearance, and give full measure.

WHAT OF THE FUTURE.

The horticulturist, at the close of the 19th century, stands trembling. Trembling because the entomologists declare that the descendants from a sound, healthy, prolific insect in the course of a year may be more than a billion. Trembling because the doctors talk about the lightning multiplicity of spores and germs that produce all manner of disease. Trembling because our mode and method of fighting insects and diseases are, in many instances, a financial failure. Trembling because we always have the careless and indifferent with us who breed and nourish insects and diseases. Trembling because we can not protect our crops from the injurious insects and contagious diseases of our neighbors.

But Prof. Galloway, of the United States Department of Agriculture, comes forward with consoling predictions. The professor announces that during the coming century, efforts will be made to produce hardier plants.

Some years ago a man engaged in animal industry said that a louse would not remain on a healthy animal. What a glorious coming future when we have melon and pickle vines so healthy that a louse will shake her head and migrate to our careless neighbor's patch.

The coming century, no doubt, will demonstrate the possibility of producing hardier plants. We can feed garlic and onion flavor into our butter and eggs. The florist can change a purple flower into bright red by feeding the plant alum. Is it too visionary to believe that better flavor can be fed into our fruits? Perhaps the coming horticulturists need only plant the hardy Keiffer, and by proper feeding, produce both Bartlett and Flemish Beauty. We can well imagine the horticulturists of 1999 walk with steady nerves among his healthy trees, shrubs and vines. The 19th century was a period of research. The 20th century will be an epoch noted for practical scientific application. The young horticulturist may rejoice of the bright future before him. The gray headed horticulturists need not go down to the grave lamenting. He, too, may rejoice for the part he has taken in placing horticulture on a scientific basis.

The President: Mr. Owen is the next member of the ad interim committee, and represents the Fourth District.

AD INTERIM REPORT FOURTH DISTRICT.

BY MR. OWEN.

Owing to the geographical position of the Fourth District, embracing Erie, Ottawa, Sandusky, Seneca and Huron, the commercial fruit industry of this District is almost wholly confined to Ottawa and Erie, consequently my report will bear especially upon these two counties. I might say that prevailing conditions in these two counties hold equally true in the balance of the district.

The season has been fairly favorable for small fruits. Strawberries and raspberries were a fair average yield, and brought good prices the season through. Currants bore an excellent crop, but the prices were very low, and it was only the very large red varieties that yielded any profit to the grower.

Cherries—Most sweet varieties produced about half crop, and same was true with most of the sour or sub-acid varieties. Quality was good and demand excellent, although prices did not range above two dollars per bushel.

Grapes—Throughout the Fourth District they were not worthy of the name, especially the later varieties. The most complete failure of this luscious fruit that has been recorded for years, due entirely to the rot. Some Concord vineyards that we properly sprayèd, produced about half crop of fair quality fruit, while Catawbas, many vineyards were not worth picking. What grapes were harvested could only be sold for wine purposes, and prices ranged from $20 to $55 per ton.

I will venture to state that most of this vast loss may be attributed to the fact that owing to the fine crop of last season, with practically no evidence of the fungous diseases, the vineyardists this spring neglected taking the usual precautionary measure in early spraying, thinking they might possibly be favored with same conditions that prevailed last season.

Plums—Everything gave promise of a fine crop. Trees full of blossoms, set well with fruit, and trees in thrifty condition. But alas! the harvest was not much better than that of the grapes. What promised to be a fine crop vanished to about one-quarter of a crop; due, principally, to the plum rot, aided by the Curculio. Prices were in accordance with the crop—small, averaging about one dollar per bushel, excepting for some of the later large varieties, which brought about dollar sixty per bushel.

Only about one-third crop last, and less this season, coupled with the exacting care and hard work connected with raising this fruit, has discouraged some of the growers, and for this reason many trees and orchards are being uprooted.

Pears—Nearly all varieties bore a full crop. Bartletts were exceptionally fine; likewise the despised Kieffers matured a good crop. Those that did not dispose of their Kieffers early received an average of fifty cents per bushel, and but little advance over this price was received for the earlier and better varieties.

Quinces—Orange quinces produced a very satisfactory crop. Very little scabby fruit, and the fruit attained good size. Even the Champion matured some fair colored fruit, the first for several seasons. Prices ranged about sixty cents per bushel.

Apples—Never was there a larger crop of apples than there was during the early part of this season. Even the Codling moth was dazed at the prospects before him, and seemed to make but little progress in his attempted ravages on the crop. Everything went well until the visitation of that horrible Texas cyclone on September eleventh. This was not the most approved time for thinning the fruit, but it was the only salvation for the trees, and by Nature taking it upon herself to do what man had failed in doing, was the direct cause in more than doubling the value of the crop. Fully one-half of the apples were blown from the trees; by some, the loss was estimated at seventy-five percent. Of course it blew off must of the large and heavy fruit, but this loss was more than overcome by the destruction of the poor, knotty and wormy fruit. Results of the storm enabled the grower to harvest as nice a crop of average size, smooth apples as could be desired. During the shipping season prices ranged about $1.25 per barrel, but since then prices have about doubled, and those that now have a good stock in store are reasonably sure of a good bank account.

Peaches—Everything that even bore the semblance to a peach tree was loaded with fruits, all varieties, from the Seedling to the famed Elberta. Seemingly, same conditions prevailed in nearly every peach-growing section of the United States. The important question that confronted the grower was: "Will we be able to find market for all this vast crop, and what about the supply of packages in which to ship?"

There was much speculation as to what the results would be. The orchardists who pruned their trees severely, were the ones that received the benefit in the way of far superior fruit, both in size and in quality. The results were not so marked for those that depended more upon thinning than upon pruning, probably due to their delaying the thinning too late in the season.

The season for the development of the fruit was not as favorable as that which matured the large crop of fine fruit in 1898. There did not seem to be any abnormal drought, but the hot wave that passed over this section in the early part of September seemed to have a deleterious effect upon the proper development of the later varieties of peaches. Elbertas were not up to the standard, neither in size nor in quality. All the later varieties were also lacking. Salways especially, were a disappointment, with a large percentage of them badly affected with the Scab fungus, and undersized fruit.

The prospective crop of peaches of Ottawa county was early estimated at 1,000,000 bushels, but through results of the Curculio, wind and undersized fruit, the size of the crop was considerably lessened. The storm of September 11th, blew off thousands of bushels of peaches in all stages of development.

The market held up remarkably well considering the vast supply of peaches from all sources. Peaches from the Eastern sea-board were shipped to central western market, and peaches from Michigan and Ohio were shipped East; but for all this, there seemed to be a better distribution of the crop than of some of the previous large crops. No extreme gluts prevailed as is usual in times of large crops, and prices continued with no very great fluctuation in the averages until about September 27th. This was commencement of the hottest weather during the whole season, which continued for about ten days, during which time the local markets became badly demoralized and the fruit did not carry well in reaching distant markets, consequence of which, averages were considerably lower during this time. Prices averaged during the entire season for the four grades about as follows: AA grade, $1.30 per bushel; A, 90 cents: B, 60 cents; and C or Cull grade, 30 cents.

No new varieties of any special merit have come to our notice. The Captain Ede has proved a good auxiliary to the Elberta type, ripening as it does, about four days previous to the Elberta. We are also looking with favor upon the Emma, which follows the Elberta in time of ripening.

The season has been fruitful in experience to the grower in more ways than one. It has conclusively demonstrated to the up-to-date orchardist that he can not longer afford to market poor varieties and small peaches. Already the lesson is having its wholesome effect, which is evidenced by the many unprofitable trees that have already been uprooted.

Curl-leaf developed to a damaging degree on some varieties of peaches, in some of the untreated orchards, but wherever they were treated with either the Bordeaux or Whale-oil Soap, no especial damage was apparent.

The San Jose scale situation remains practically same as I reported last season, with the exception of its becoming more widely spread.

This has been another ideal season for its development and dissemination—continued warm weather into late fall. Treatments with the different remedies have been contradictory in their results, under seemingly the same conditions. What would produce satisfactory results in one instance would utterly fail in another, all of which will, no doubt, be dealt with in the report from our chief inspector.

For all of the many discouragements and knotty problems that confront us, we are pleased to report a satisfactory outcome for this season, and the outlook is encouraging to the up-to-date, careful and painstaking horticulturist of the Fourth District.

The President: Mr. R. J. Tussing representing the Fifth District will now present his report.

Mr. Tussing: I will state before beginning this report that it includes four counties, Morrow, Licking, Franklin and Pickaway, and I have got over into Mr. Cox's district, being close to Fairfield.

AD INTERIM REPORT FOR THE FIFTH DISTRICT.

BY MR. R. J. TUSSING.

Beginning with the strawberry, will say, that the fall of 1899 was very dry, and the Grub worms were very bad, so that most plantations had a thin stand of plants. Indeed, some few patches were practically ruined.

The frost of May 4, 5 and 10, 1900, killed a great many blooms, so that altogether we had about a half crop. In Fairfield county, on what is known as the Chestnut Ridge, they had a full crop, frost not affecting them any.

Prices in Newark in mid-season ranged from $2.00 to $3.00 per bushel, the market at the latter price being quite limited. My berries netted me $2.20 per bushel in the Columbus market. After testing some twenty varieties, will say that I have discarded all but the Bubach, Haverland and Lovett for commercial use. While the Nick Ohmer and Clyde have a few friends, with me they are not profitable.

Of raspberries, the black caps are so affected by anthracnose that many plantations have been abandoned. The Eureka does the best for us, but does not produce enough canes to suit me.

Mr. Levi Thrash, of Fairfield county, has fourteen acres of Greggs in bearing, which were quite full of fruit the past season.

The prices ranged from $1.25 to $2.00 per bushel. Red raspberries, besides being affected with anthracnose, were badly diseased with the root gall; do not know of a healthy patch.

Blackberries were affected very much by drought also, the late rains making the later pickings of better quality than the earlier. Not many cultivated berries are grown, but Snyder is the principal variety, with a few early Harvest, Taylor and Eldorado; the latter promising well with us, but charged by some with being a shy bearer. Prices ranged from $1.25 to $2.50 per bushel.

Currants from various causes were not a good crop in Licking county, but with us we had a good crop, netting us from $1.75 to $2.00 per bushel. The Victoria is the leading variety. While the Fay's Prolific produces some nice fruit, it is anything but prolific with us.

Gooseberries were a good crop, prices were $1 to $1.25 per bushel in the Columbus market.

Mr. Montgomery reports that the Columbus and Crown Bob mildewed badly for him for the first time this year. Cherries are not much grown in this district. I have twenty-five trees of the Early Richmond, which bore a full crop, netting me $2.20 per bushel.

The quince trees were loaded with fruit and brought on an average of $1.00 per bushel, wholesale. Trees are affected badly with blight. The Kieffer pear trees were overloaded, and the fruit small, but where properly ripened brought remunerative prices. Ours netted us 90 cents per bushel.

There are scarcely any plums grown in our vicinity for market. But Mr. Samuel Taylor, of Pleasant Corners, has several acres just beginning to bear, comprising 51 varieties, of which he says the Burbank is the most profitable for market purposes. He had a good yield and received from $1.50 to $2.50 per bushel.

Peaches with us were a complete failure. Mr. Montgomery, of Licking, reports all of the finer varieties of budded fruit killed, excepting here and there a few Lemon Free and Salway.

Williams Cling, as it is called there, is extensively planted in the Eastern part of the country, and of this variety there was a good crop, growers making some money with it.

Grapes are not grown but for home use, but what vines there are were quite full.

In our vicinity apples were almost a complete failure, while in Licking and Morrow counties the crop was variable. Some orchards were quite full, while others produced scarcely any fruit. A wind storm on September 11th blew off a great many, making a glut in the market of wind falls. After they were disposed of the wholesale price quickly rose to 50 cents per bushel.

The Stark apple seems to do well in this district. As the tree grows older they bear better and the fruit is larger and gives satisfaction to the consumer.

The Canker worm was very bad on the apple orchards South and East of Columbus the past season, defoliating the trees to a considerable extent. The potato crop in our vicinity was a failrure with the exception of the early patches that were planted to Early Ohios. The drought and blight were the main causes. Four-fifths of the farmers of our vicinity will have to buy potatoes for family use. There has been over four thousand bushels shipped into our village already.

Tomatoes were badly affected with dry rot in our section. Mine, that were planted on upland, were almost a complete failure owing to the dry rot, but those that were planted on low land or black soil produced well and were not much affected with the rot. Many patches were ruined by blight. Some have been spraying with Bordeaux mixture to prevent blight, but have been only partially successful.

There was an unusually large acreage of nutmeg melons planted the past season in the vicinity of Columbus. With the exception of those that were sprayed, were badly affected by the blight and were a disappointment to the growers as well as the consumer, as the quality was poor and brought an average of about $1 per barrel. Those that sprayed received good prices, as the quality was fine; mine, which were sprayed, netted me over $2 per barrel.

Several greenhouses have been erected the past year near Columbus, for the purpose of growing lettuce in the winter, which is becoming quite a trade among the gardeners of our locality.

The President: Mr. Cox, representing the Sixth District, will make his report.

AD INTERIM REPORT FOR SIXTH DISTRICT.

BY E. G. COX.

The year of 1900 has given us good crops of most fruits, which sold for better prices than last year. Strawberries averaged about $2.00 per bushel for such varieties as Sharpless, Haverland and Tennessee, while the smaller varieties sold for about a cent a quart less. The white grub and root louse damaged the plants last year to some extent, and the louse killed a great many plants in August this year. The plants grew well until the dry weather set in in August, when the lice sucked the life out of them. I think I have about half a stand of plants and my patches are better than the average over the country.

Raspberries were a good crop and averaged about $2.50 a bushel. Eureka, as usual, took the lead—it is a good bearer—early, and the berries can all be picked at a few pickings. I saw the Munger this year; it ripens about with the Gregg and seems to be more productive. The cane borer has done some damage this year. Both cultivated and wild blackberries were plentiful and cheap. Early Harvest, Erie and Snyder are about the only varieties grown. The Erie has been about the best berry till this year it rusted badly and about half of them had to be dug out. The peach crop in Lawrence and adjoining counties this year was a record breaker. There are several thousand trees in Lawrence county, and they all bore well. Most of them were not thinned and the peaches were not large. Our own crop were above the average in size and brought good prices. I saw several of the newer varieties this year. The Sneed is the earliest by three or four days, much better than the Alexander, although some inclined to rot. The tree is a very robust grower with a leaf 2¼ inches broad and 9 inches long. Triumph and Greensborough are 10 days or two weeks later. Triumph is not very attractive in appearance—it is very fuzzy, a dull yellow in color and a cling. Greensborough is a much better peach; it is large for its season, a free-stone, not much inclined to rot, but it doesn't get very red. The Elberta never bore very well in our section before, but this year it was the best peach we had, and nearly all of them sold for $2.00 a bushel. It doesn't overbear like most varieties and all the peaches are large. I saw 25 that filled a peck basket. Gold Drop is a pale yellow peach of fine quality, but ours were very small. Wonderful, Marshall and Smock are so near alike in tree and fruit, that no one can tell them apart. Champion is a fine peach, ripening about with Mt. Rose. There was a good crop of plums consisting of Lombard, Reine, Claude, Bradshaw, Genii, Ponds S., and Damson. There was some rot this year, Lombard, Genii and Rein Claude rotting worst. G prunes, on trees nine years old, began to drop as soon as the bloom came off and kept dropping all summer. When picking time came there were very few on the trees. It was not the work of the Curculio, for the trees were thoroughly sprayed and jarred every day, except Sunday, for about three weeks. None of the other varieties dropped, and I picked off three-fourths of the Lombard when they were small. I grubbed out nearly all of my Japans a few years ago. I never got a plum till this year. I picked one Willard. They always bloom too early, and if they don't get killed, they will drop anyway. I budded some of them to European varieties three years ago; they grew well for a year or two but are nearly all dead now. Monarch, Arch Duke and Grand Duke are promising late plums of good size. Field, claimed to be 10 days earlier than Bradshaw, is no earlier and not as good as Bradshaw. Black knot is about to ruin all the Damson trees. I have no knot in my orchard as I cut all my Damsons down several years ago and I have never found a knot on a European variety. Nearly all varieties of pears bore a full crop. The kinds mostly grown are Bartlett and Kieffer. Bartletts sold for 75 cents to $1 per bushel for ordinary, while some fancy ones sold for 80 cents per basket, 2½ baskets to the bushel. Kieffer trees had about eight times too many pears on them. I picked three-quarters of mine off and the balance broke some of the trees down. The market was full of Kieffers for about two months and they sold for 75 cents a bushel. I put mine in cold storage and sold them about two weeks ago at $1.50 a box of about 3½ pecks.

There was a good crop of early apples but not half a crop of winter varieties. There were a few orchards besides ours that were sprayed this year and all were well satisfied the apples were free from scab and less wormy than usual. Unsprayed orchards bore a light crop of the scabbiest applies I ever saw. There were very few B. Davis, and they bitter, rotted badly. One man cut his trees down and others are talking of doing the same. Ours is a Rome Beauty country, but there are a few G. Golden Y. Imperial and same others grown. The Y. Imperial with us has borne three crops in the last three years. Our crop of over 3,700 boxes, mostly Rome Beauties, is in cold storage at Huntington, W. Va., and keeping in almost perfect condition. A hundred boxes of them look something like this. Unsprayed apples rotted badly early in the fall. Cultivation, spraying and cow peas produced the barrel of Rome Beauties, a third of the exhibit of Brother Pierce, Farnsworth and myself, which was awarded a silver medal at the Paris Exposition.

The President: Is Mr. Carr, from the Seventh District, here?

Mr. Carr did not respond.

The President: Mr. Carr not being present, we will listen to the report of Mr. L. B. Pierce, from the Eighth District.

AD INTERIM REPORT FOR THE EIGHTH DISTRICT.

BY MR. L. B. PIERCE.

The growing season of 1900 was remarkable for its length at the latter end. I sold ripe tomatoes on the 20th of November, some of which were still on sale at an Akron grocery on Thanksgiving day, making a season of ripe tomatoes including Florida shipments of about nine months. String beans, sweet corn and egg fruit were sold by gardeners as late as November 10th, the first killing frost occurring on the night before election. The following night a political frost culminated, the effect of which reached as far West as Lincoln, Nebraska.

June weather for two months after it was reasonable to expect frosty nights, ripened winter apples on the trees and such varieties as Winter Rambo, Belmont, Northern Spy, R. I. Greening, Canada Red, Spitzenberg and Baldwin, began to seriously decay during November, and today the market is nearly bare of home grown fruit of these varieties, dealers paying at 75 cents per bushel. Quite a crop of Ben Davis has developed from trees sold in Summit county as other varieties by traveling agents and labeled to suit the purchasers' demands.

Owing to the long growing season these were uncommonly fine for Northern Ohio, and if kept until February or March would ripen in good color and some flavor, but peddled from house to house in October they led many an innocent housewife to curse the day in which the Ben Davis was discovered.

The Keiffer pear appeared in the markets late in October, shipped in barrels, and were really fine to look upon, being of enormous size and almost covered with a copper colored blush. The copper color was in excess of anything I have ever seen before and possibly may have developed from the brassy assurance necessary to market the fruit. The Keiffer has excellent staying qualities in Akron as it neither sells nor rots. It seems to be leading grocers into a wild form of profanity for three staid and respectable grocers assured me that it wasn't worth a damn. However, one grocer who visits Pittsburg occasionally tells me that it is a great seller in that city and that consumers cannot get enough.

Peaches and plums were almost an entire failure but the amount of peaches sold in Stark, Summit and Wayne counties was something surprising. The excellent quality of most of the offerings, and the reasonable price which scarcely varies from start to finish after Port Clinton stock began to be sold, had much to do with the quantity consumed. B grade sold for $1.25; A for $1.50; Double A, of which very little was handled of Ohio stock, commanded $2. The grading was almost perfect in uniformity, and a good deal of the stock was well ripened, especially of Smock and other late sorts. A friend in Southeastern Stark county, who handled peaches for a Gypsum man, writes me that he sold 200 bushels in one day.

The quantity of peaches coming from Ottawa and Lucas counties was enormous and why Ottawa county treasury should go dry soon after the peach season and county officials go begging for salaries, is incomprehensible. Peaches were in good supply in Akron as late as November 12th. Elberta from Fort Valley, Ga., were in the Akron market in July in excess of the demand and many rotted in commission men's hands, causing resorting and low prices. The wholesale price for double A grades of beautiful appearance was 75 cents per six basket carrier, holding about twenty quarts. Retailers sold at an advance of 10 to 15 cents per carrier and it was really the best time to can, but the weather was hot and summer resorts running wide open, so the majority of women failed to benefit by the opportunity. It is thought that the Georgia people realized less than 40 cents per carrier at their station. What they netted after paying for packages and gathering would scarcely be enough to permit them to winter in Cuba or Porto Rico.

The abundance of peaches curtailed somewhat the use and sale of the tomatoes and grapes. Grape growers seem to be getting more and more slouchy and careless in packing fruit, and many baskets contained small pieces of clusters and were of light weight and very few were so put up as encouraged the purchase of more. This was true of Concord and more so of white grapes.

Very little attention seemed to be paid as to whether any were ripe excepting enough to top the baskets. White grapes maintain their beauty only a day or two after arrival and seem to be an unprofitable class to handle. Delawares were the only sort coming up to a high standard except a small consignment of Vergennes which come to Akron every year. The commission men pronounce it Virgins and I saw a bill made out with that spelling. The small offering was quickly consumed by the dealers, the prices asked being the same as Delaware.

Berries were not a full crop and prices were 20 percent higher than last year. The root gall is making the growing of red raspberries more and more difficult. Currants and gooseberries were fine and profitable crops, yielding well and selling quick at $2.50 for currants and $1.60 for goosies. As there is no serious pest to hinder the bushes from growing, the growers have nothing to contend with save the worms.

Onion and Curcubitae blights appeared promptly on time but onions were mostly of a salable size. In a ride of 40 miles during the latter part of August, I did not see a single unblighted patch of cumcumbers and but two of onions.

The cucumber pickle crop was consequently very short and string beans, mangoes, onions and green tomatoes were in great request, the latter being sold by all gardeners down to the size of a hickory nut.

Market gardening the past season was fairly profitable, the markets of Canton and Akron being constantly sold close up with little waste, and the Jews who live by peddling stale vegetables had to go to collecting old iron and rubber.

Commercial fertilizers are being used more and more by market gardeners and on clay loams well filled with humus with excellent results. Very fine and profitable crops of Holland cabbages were grown upon sod turned under and fertilized with 600 hundred pounds of high-grade phosphate per acre, applied with a grain drill. One gardener applied this amount to a piece planted to early blood beets and then gave a heavy dose of nitrate of soda. The result was a rank leaf growth and a late crop of beets which only brought twenty-five cents per dozen as against forty cents three weeks earlier.

There are many problems connected with the growing of vegetables which should be investigated by the Experiment Station, and it seems to me that the truck growers are not getting their share of station work.

The President: Mr. Brawley, representing the Ninth District, will now present his report.

AD INTERIM REPORT OF NINTH DISTRICT.

BY MR. BRAWLEY.

Mr. President and Members of the State Horticultural Society:

I do not need to locate the Ninth District further than to say it is in the southeast part of the state, Belmont county on the north, Ohio river on the east, Meigs county and Ohio river on the south. The soil is limestone, sandstone and shale, limestone predominating.

The season of 1900 has not been a bountiful one for most fruits grown in the district, for reasons I will name further on.

The peach buds were all right for a fair crop until the 24th of February. The morning of the 24th was warm for the season of the year; commenced raining at 8 o'clock; wind blew; rain turned to snow and ice; mercury fell 45 degrees in 18 hours. Morning of the 25th thermometer registered three degrees below zero. The cold was not intense enough to kill the buds but for the sudden change of temperature. The storm came from the southwest. Orchards with a southwest exposure were almost afailure, especially so of Crawfords, Globe and Chairs choice. In Athens and Meigs counties, Globe and Chairs Choice failed, frost or no frost.

The apple bloom gave promise of an average crop. When in full bloom May 4th and 5th, we had sharp frosts that caused 50 percent of apples to drop. Almost the entire month of May was dry. The May frosts and dry weather killed red clover almost entirely. I do not know of a field of clover on any farm sown in 1900 in the eastern part of the district.

Plums were not grown largely, but where grown were fairly good and brought fair prices; European and American plums are grown, and Japanese plum trees, but no plums.

Black knot and curculio gave no trouble. Rot was the evil this year—was specially bad on Lombards.

Not many cherry orchards fruiting where there are orchards old enough to fruit. Fruit was fair and sold at $1.50 to $2.00 per bushel of 32 quarts.

Pears blighted badly; many trees killed outright. But few quinces. The trees on low land were killed by the February freeze of '99.

Strawberries are grown as a commercial crop in Muskingum, Guernsey, Belmont, Washington, Meigs and Morgan counties. Crop was fair for early berries, and brought fair prices. Raspberries and blackberries not extensively grown; what there was poor in quality.

Currants and gooseberries grown for home use principally; crop almost a failure. Aside from the February storm and later frosts, the weather conditions all one season were unfavorable for a full crop of fruit. A hail storm on the 15th of August, in the southeast part of the district, beat off apples, peaches and other fruits. Those that were left were so battered as to be unsalable. Then the Galveston blow blew off hundreds of bushels, that could only be used for cider or butters. To complete the season, there was almost uninterrupted hot weather the entire months of September and October, which caused apples to rot.

The district is not thoroughly organized in Horticultural associations, but Muskingum, Belmont and other counties have Horticultural Societies. Each county in the district has from two to four Farmers' Institutes, at which more or less horticulture is talked.

We are not exempt from disease and pests—the worst diseases or pests of the apple, coddling moth and apple scab, both of which are under fair control by a free and thorough use of the sprayer.

Yellows in the peach is more to be dreaded than all the other pests that have shown up in the peach orchards. The only remedy we have found that cures is that of Prof. Selby's—to dig and burn as fast as the disease appears. Orchards so cared for are all right in tree and fruit. There are some orchards that show no yellows. Rot in plums bad, especially so for Lombards; curculio and black knot not troublesome.

Most fruit men in the southeast part of the district do general farming. Have as much work as they ought to do, let alone fruit, which too often takes second place.

The peach crop in Athens county was 25 percent of an average crop—175,000 20-pound baskets, 175,000 5-pound baskets, 35,000 2-pound baskets, and 70,000 80-pound baskets—$56,000.

Apples 25 percent of a crop. All marketed. Home supply will be scarce by holidays.

Orchardists are planting more of the large fruits than the small apple and peach. For the largest, some orchards of plum, pear and quince are grown. Blue plums brought better prices than yellow ones; yellow, better prices than American plums.

The President: We will now listen to the report from the Tenth District, which is represented by Mr. C. L. Whitney.

AD INTERIM REPORT OF TENTH DISTRICT.

BY MR. C. H. WHITNEY.

Mr President and Members of the Ohio State Horticultural Society:

The season just passed has, perhaps, been an average one with the fruit grower, as regards success and failure, to consider the district as a whole; but I think in my own county, or section, a little more failure than success. The matter about reads thus: A big apple crop, but few apples; very poor pear crop; no peaches, no plums, no cherries; half-crop grapes; good crop gooseberries; one-third crop currants; fair average crop blackberries, raspberries and strawberries.

The reason for the failure was largely frost. Conditions are so varied in the district it is not easy to state the outcome with one expression. If we say the apple crop was poor, some fellow may say, Did you not know there was a big crop of apples down in Smithfield? My statements should be considered in a general way, so when I say a small sum was or is being realized for a big crop of apples, the statement is not at fault if someone somewhere, who has taken better care of his orchard than the average, secures a large crop of fine fruit.

The apple crop, which promised large returns, was badly damaged by a strong wind just before picking time, in many orchards nearly the entire crop being blown from the trees. Thus it has been that most of the apples offered in our market are poor in quality. More of the fruit seems to be wormy or otherwise imperfect than usual. The pear crop was not large. In some sections the buds were largely killed by spring frost, while in others a half or two-thirds crop was secured. Prices fair. Many Keiffers were shipped in and placed on market in Warren. What shall I say of them. Big pears, but the same old fraud. Growers pick them and send them right off to market because they are hard as a rock and will ship well. Never ripened; never look like oranges, as they should; never look inviting; sell slow, and never fit to use. The Keiffer, properly ripened, is a thing of beauty and a joy to eat when taken from the can, and will sell "like hot cakes;" but as long as growers will rush them off to market soon as picked, they will be no beauties, will sell slow, and be a disappointment to the consumer, always in disrepute and a fraud.

The peach buds in most of the districts were totally killed by freezing in winter. In a few favorable localities some fruit was harvested. On my place plums and cherries were all killed by spring frost, but in other sections a fair to good crop resulted. Most of the cherries, however, offered in our market were from New York orchards.

Plums were largely from an extensive orchard in Mahoning county. Grapes are not grown to any great extent. The crop, so far as I know, was hardly a fair average. A young vine on my place of the McPike bore two or three clusters, which were a long way from being such grapes as were exhibited by Mr. McPike. Columbian Imperial bore some fine-looking fruit, better in quality than previous crops. Currants on my place were two-thirds to three-fourths killed by frost, while gooseberries were not damaged. No doubt Jack Frost was more considerate in many portions of the district. The ruling price of currants and gooseberries is too low to offer any inducement to grow them. I grow them for love, and not for money. A fair crop of raspberries sold for fair prices. About twenty young plants of the Haymaked raspberry made an exceedingly strong growth for the first year. Kansas, with me, is the strongest grower of all the blackcaps. The enormous production of raspberries two or three years ago, bringing the price down to $1.00 to $1.25 per bushel, seems to have had the desired effect of curtailing the production to more nearly conform to the demand, so that fair prices are again realized. This illustrates the—I was about to say foolishness, but perhaps it would sound better to say shortsightedness—of many people. A man grows fifty bushels of berries and sells them at a profit of fifty dollars. He easily figures that, if he can grow five thousand bushels, he can clear five thousand dollars. A fortune is almost in sight; but, alas! when the crop is sold or returns come from the commission house, he, perhaps for the first time, finds that figures will lie, or at least mislead. The same might be said of blackberries. A very good crop of strawberries was sold for better prices than the past two years. Of new varieties, we can report: Gladstone, advertised as a very early berry, large and fine, ripened with Brandywine, our latest; not large, poor bearer, worthless. Excelsior, quite early, but medium in size and productiveness, and poor quality. Mayflower, the same except the quality, which is good. Jerry Rusk, not a strong grower, but a good bearer, large and good color. Weather has been too dry through the latter part of the season to make good wide rows for next year's crop.

Thus we go on from year to year, hoping for better things.

The President: We will now vary the proceedings with a little music from the ladies, who will entertain us with a piano duet.

The President: We will now listen to a paper by Professor Green, on fruit notes for 1900. After Professor Green's paper is heard, discussion will be in order on the different papers, and also on his paper.

FRUIT NOTES FOR THE YEAR.

BY W. J. GREEN.

Each season the fact becomes more and more apparent that fruit-growing must ultimately fall into the hands of experts and specialists. It is quite as natural that fruit-growing should gravitate this way as it is that other lines of business should take the same course; but there are some agencies at work which have a particular and peculiar effect upon fruit-growing. In general these agencies are of such a nature as to make fruit-growing increasingly difficult.

As fruit culture develops, insects and fungous enemies increase; but the ratio appears to have been changed, and the odds now seem to be against the fruit-grower. Unless there is a change in conditions it is not unlikely that we soon may hear of the passing of peach culture in sections where hundreds of carloads of peaches have been harvested in a single season.

The San Jose scale will find poor pasture when it gets into the peach yellows districts. If allowed to go on as it did last season, the canker worm alone will annihilate thousands of apple trees within the next few years, and there is no good reason to suppose that much will be done to check it. The San Jose scale is quite as likely to be allowed to have its way as the others, except for the effort made by the state and a few individuals. This must necessarily be inadequate, however, and there will still remain infested orchards which cannot be reached, even with an army of inspectors and sprayers. If we leave out of consideration the help which may come through parasitic enemies to these insects, the outlook seems dark; but there is truth in the paradox that fruit-growers have no more enemies than they need. Unless something unexpected happens, the doom of many orchards in this state is sealed.

There is nothing in the condition of affairs to cause rejoicing. It cannot but help to work injury to many, but some will be benefited. For my own part, I would be glad to see every owner of a plot of ground have, of his own growing, all the fruit that he needs. It is possible, but no longer probable, that he will have it. Those who make orcharding a business must, from now on, provide a supply for the dwellers in the city, village and country alike. It is probable that, in the near future, the professional fruit-grower, while he may have as much or more to contend with on the one hand as in the past, will feel less of the ruinous competition by those who are now making fruit-growing a side issue. The time may come, also, when he will have only his own codling moths to fight, as well as all insects and diseases which give trouble mainly because they are harbored in neglected orchards. Thus, it seems to me that the future is bright for the expert fruit-grower, because he will likely profit by the losses of others. In controlling the codling moth at the Experiment Station the results with sheep have been only partially successful. Early in the season sheep may be kept in the orchard in sufficient numbers to pick up about all of the first wormy apples that drop. Twenty sheep to the acre will keep the grass closely cropped, and pick up all of the first wormy apples that fall, but the sheep will need considerable quantities of bran to keep them in condition, and possibly some other feed also. This plan works very well until about the first of August, or possibly a little later. If one were on an island several miles from shore, his sheep might save his apple crop; but the wormy apples, and many that are not wormy, which drop during August and September, are too numerous for any reasonable number of sheep. If the orchard is cultivated the sheep will not eat the apples from the bare ground. Hogs would be better in this case, but the same difficulty exists in regulating the number of animals to the supply of wormy apples. In other words, there are too many apples late in the season to be eaten by stock as soon as they drop. The effect of dry, hot weather, especially in September and early October, upon the apple crop, has not received the consideration that it should. We cannot prevent these conditions, but we can ameliorate their bad effects. At such times apples ripen too early and drop badly, and do not keep well when stored. In the orchard at the Station, the cultivated portion endures the dry weather better than the part in sod. The apples where the trees are cultivated are later in ripening and hang on better than where the trees are in grass. Mulching has had a better effect than cultivation in keeping the fruit on the trees. Mr. Vergon's orchard of forty acres gave a crop of about 7,000 bushels in 1899, and about 4,000 in 1900. The trees were mulched with the grass from between the rows. The drop was insignificant. In spite of the hard wind storm which visited all parts of the country in September, there was but little loss in the orchard. About 300 bushels were taken off by the wind, but nearly all were marketable because they were not bruised in falling. The matter of mulching has seemed to me of sufficient importance to warrant the planting, at the Experiment Station, of an orchard for the purpose of testing the comparative effects of mulching and cultivation. The experiment includes plum, peach and apple trees. In the case of peach trees, it will be interesting to note the effect of mulching upon winter killing of the wood. If it is found to be possible to mulch peach trees without injury, it will be a step forward in peach culture on hilly lands, where cultivation is impracticable.

If a vote were taken today to test the popularity of varieties of apples for Ohio, I believe that Ben Davis would take the lead for market. There is no arguing against success, and there can be no question about the success of the variety so far as bushels and dollars are concerned. How long this will be true does not seem to worry those who are planting it. I am beginning to think that it is about time to accept old Ben in about the same way as we accept the Keiffer pear, the Concord grape, and Crescent strawberry, for what they are worth from a market standpoint. Gano has a finer color that Ben Davis, but is not superior in any other particular. Both are apt to lack color in the northern part of the state, in fact, in any section, in seasons where the foliage suffers from the effect of the apple scab. Missouri Pippin is wonderfully prolific, but is too small, partly because of a tendency to overbear. It begins to bear at an early age, but is hardly more precocious than Ben Davis. Trees of the Mann apple have shown a decided weakness of roots. No trees of any other variety in the orchard lean as badly as the Mann trees. No fault can be found with the fruit except its color. Bismarck gave some fine specimens, but not more beautiful than the Wealthy, nor is it equal to that variety in quality. It is not a variety about which the orchardist need concern himself greatly. The Wealthy seems to fill all of the places which the Bismarck can fill, and more.

The Ensee apple appears to me to have considerable merit. It seems to have all of the desirable characteristics of the Rome Beauty, besides the high dessert quality of Grimes' Golden. A variety known in some parts as the Robinson apple, appears to be worthy of consideration. It is a good cropper, very reliable, has a fine red color, and keeps well. In some parts of Richland county it stands above all other varieties in the estimation of those who have grown it for the last twenty years. It may be an old variety, but has not been identified.

I never before had as good facilities for observing the effect of cold upon peach buds as last spring. The temperature was low enough to kill almost every bud on some varieties, while enough of others escaped to give a full crop. I had been wishing for such an opportunity as this, but regret to say that not very much of practical value is likely to come of it. It is interesting to know which are the hardy and which are the tender varieties, but the value of such knowledge is lessened by the fact that the temperature seldom stops falling when it has reached the danger point of the tender sorts. It does sometimes stop falling before the buds of all varieties are killed, but what have we left when the tender kinds have perished? Unfortunately, when this point is reached about all of the really good sorts are gone. Those that are left might be described as belonging to the seedling class. Crawford, early and late, Elberta, Smock, Old Mixon, Stevens' Rare Ripe, Gary's Hold-on, Salway, Foster, Stump are the first to succumb. Lemon Free, Kalamazoo, Fitzgerald, Mountain Rose, New Prolific, Early Rivers, Champion, Crosby and Heath Cling hold out a little longer. Hills' Chili, Lemon Cling, Triumph, Greensboro, Miss Lolo and a number of seedlings are still hardier. Hills' Chili and Lemon Cling may be taken as standards for hardiness. Greensboro and Triumph are not quite as hardy, but will endure more cold than Crosby. I would rate Champion as perceptibly hardier than Crosby. The majority of Japanese plums are scarcely harder than Hills' Chili. Red June may be a little hardier and Chabot considerably so. It may be classed with the European sorts as to hardiness, with the exception Moore's Arctic.

Referring to varieties of peaches again, I can not help praising the Triumph, although some peach growers in the state are not pleased with it. Early peaches have less commercial value than formerly, but it so far surpasses other early sorts which we have as to merit a trial generally. Miss Lolo resembles Early Toledo, and ripens at about the same time, but is larger and better. Greensboro ripens with Early Rivers, but is of better quality. Champion is not as early as was claimed, but its reliability and good quality ought to give it a high place among white fleshed sorts. Fitzgerald and Kalamazoo are both promising yellow varieties. The latter is thought to be identical with the New Prolific.

An experiment with chickens in a plum orchard shows that it is not a difficult matter to get chickens to pick up curculios, but it seems to be necessary to jar the trees the usual number of times. The chickens soon learn to follow from one tree to another as fast as jarred. There would be something of a saving of time by this method, and it might have some other advantages in small orchards, as it would do away with the necessity of a curculio catcher. Plum culture has now reached a stage where more attention must be given to growing fancy fruit, and, as a rule, late sorts find a better market than early. Choosing with reference to size, color, and time of ripening, the Grand Duke stands almost unrivalled. Arch Duke and Monarch are better growers, but are not so uniformly large and showy. Coe's Golden Drop has about the same period of ripening, is of better quality and less subject to rot than Yellow Egg. I believe that these large late sorts of plums ought to receive more attention than they have. Several years ago Mr. Theo. Longnecker stated in a meeting of this society that it is possible to make grape growing profitable outside the recognized grape belt. He advocated the plan of planting early varieties in central and southern sections of the state, in order to put the grapes on the market before those from the grape region come in. This idea does not appear to have been acted upon to any extent, but we have had an opportunity to test its feasibility at the experiment station. Such varieties as Early Ohio and Champion must be ruled out as being deficient in quality. Green Mountain, Rockwood, Moore's Early, Campbell's Early and Worden find ready sale at three to five cents per pound. The demand is good, for the market is bare of good grapes at that time. A little later, when grapes from the lake regions appear, the price falls, but it still keeps above the price of those which are shipped in, because of the better condition of the home-grown fruit. But few grapes would be ordered from a distance by dealers, in the small towns, if the home supply were sufficient. This is because the Concords and Wordens, which are the varieties grown mostly, are poor shippers and arrive in poor condition. The advent of Campbell's Early may change conditions somewhat, but still I believe that grapes may be grown in the interior of the state, in moderate quantities, with fair profit.

The Green Mountain is not what would commonly be called a good market grape, nor is Rockwood, for both lack the compactness of cluster and finish desirable. Moore's Early is not very prolific, and yet all these are suitable for near market. Worden and Campbell's Early must, of course, be included. Lady and Delaware might be added to the list if one is sure that he can grow them.

There has been less interest manifest in small fruits within a few years than formerly, caused by low prices. I have no statistics to show that the acreage has fallen off, but in many cases it has, and presumably in the majority. If this is true, it is easy to forsee the result. It is probable that good prices will be realized for all kinds of berries next season, and that there will be a revival of interest in new varieties.

The era of low prices of strawberries has had a marked effect upon the character of new sorts that have been put forward as candidates for public favor. We hear but little about varieties of the Crescent type, compared with former years. It is true that some small fruited varieties are grown in the south for northern markets, but they are chosen for firmness rather than for other characteristics. In the eastern states, size, color and quality have been for many years the characters sought, and it is much the same in the middle and western states now. Firmness is considered where it is necessary to ship the fruit, but size and color rule in most cases. Productiveness is sought after, but is more often subordinated than formerly. The following new varieties are worthy of mention:

Gladstone—Probably this variety will not sustain here the reputation given it in the east. The berries are large, but often have green tips, and are not produced in sufficient quantity.

Johnson's Early—This ripens a little earlier than the Crescent and Luther, and is rather smaller than the latter. The plants are vigorous and quite prolific. It is larger, but less regular in form than Excelsior, and of better quality, and ripens the bulk of its crop about as early. I am of the opinion that it will prove to be a satisfactory extra early sort for this latitude.

Excelsior—This, too, is an extra early variety. It is better suited to the south than to this section. It is uncommonly firm and can be shipped any distance. The berries are small, but regular in form, and present a handsome appearance in the baskets, but they are indescribably sour, and almost as puckery as green persimmons. Both these early varieties are more prolific than Michel, but inferior to it in quality.

The Luther has not come up to expectations generally. It has continued to do well at the station, and with some growers, but others find that it lacks vigor, and does not hold up well during the season.

The New York has considerable merit among large sorts. The berries are showy and of good quality, but there are not enough of them to suit the average grower. It seems to be more promising for the home garden than for market, but it is sufficiently promising to merit a trial by all.

Superb is large, beautiful, and of good quality. It is good enough for home use and prolific enough for market.

Sample has not failed in three seasons' trial to give a good crop of large, beautiful, highly polished berries. Nothing unfavorable has been heard concerning it, and I believe that one might safely do more than try it, but plant it for a crop.

The Nick Ohmer, under favorable conditions, is remarkably fine, but the average conditions do not seem to suit it very well.

The Hunn is a large, late sort, but is a very shy bearer.

The Starr is so much like Sharpless that a distinction between them can hardly be made.

Miller's No. 1 is to be introduced the coming season. The plants are very vigorous and prolific and the berries are large and of good quality. They may prove to be rather light in color, but one season's trial makes me think favorably of the variety.

I do not recall any other variety of small fruit not mentioned in previous reports that is of special interest.

Professor Green, speaking of the curculio, said: I know a great many think that the mere presence of chickens in the plum orchard may save the plums, but I don't know how they can get the curculio unless they climb the trees, and they won't do that. You have got to teach the chickens to pick up the curculio, by throwing a little grain around first, and when you shake the trees they soon learn what they are and pick them up.

Mr. Montgomery: Are the chickens likely to pick them up as they come out of the ground?

Professor Green: I do not think that they come up out of the ground. They harbor under the bark. I do not know just where they do stay.

The President: Gentlemen, You have listened to these excellent reports, and the whole question presented by them is before you for discussion. I would like to have you take that matter up for a short time until the adjournment.

Mr. Albaugh: While Professor Green was speaking upon the subject of hardy peaches, I might say of the peach that was spoken of last year at Newark, that we have succeeded in growing a few trees of it, and I want to say to Professor Green that if the Station would like to try a couple of trees of that new variety that has stood this low zero weather in Central Ohio, I will be glad to send them to him.

Question: It came from the northern part of the state, did it not?

Mr. Albaugh: Henry county, I believe.

Professor Green: I had a sample of it sent to me.

Mr. Albaugh: It has not yet been named nor put upon the market. The Triumph comes from North Carolina, and we do not always get a hardy peach from the South. The Triumph is a Georgia peach from Griffin, and while it did not succeed as well as it did the year before, I have no thought of throwing it away. I believe it will still succeed. We have two large blocks of the Triumph in the South.

President Cushman: Gentlemen, you no doubt know that Professor Van Deman is with us and is slated for this evening's program, but he informs our Secretary that he can not be here this evening; in fact, has to leave at six o'clock, and it is therefore necessary for us to hear from him at this time, and if it be your pleasure we might postpone this discussion for the present and listen to Professor Van Deman. I now have the pleasure of introducing to you Professor Van Deman.

Professor Van Deman: Mr. Chairman and Members of the Ohio Horticultural Society: I assure you that I feel very much at home among you. Of course, being born in this state and spending the early part of my life here, I feel more at home here, I may say, than anywhere else. I am sorry that I have to leave this evening. I had planned to spend yesterday and today with you, because I thought that your meeting began yesterday, but I have been disappointed. I must leave tonight in order to get to Michigan tomorrow morning. The Michigan Society began its meeting yesterday, and I shall be able to spend only this afternoon with you.

Now, I have come here particularly to talk to you about the Pan-American Exposition. Perhaps you are well acquainted with the purpose of that Exposition, with its whole plan, but I will venture to say that while we do not expect to equal the Columbian Exposition, we shall not be very far behind it. Ten millions of dollars are being expended to make that Exposition. Grounds are ample, the buildings are either completed or well under way, and at the opening of that Exposition, the first day of next May, there will be very little to be done. The Horticultural Building is done now, and that is the one about which I wish to talk to you most. The plan of it is different from any of the buildings for horticultral purposes at Expositions that I have ever attended. The central part is considerably over one hundred feet high, and the whole thing is arranged in such a way that there will be a large floral display in the center and about that will be the fruits. The various states have already taken space, and nearly all of the space is already engaged for the fruit display, and I certainly want to see Ohio have a good place in that Exposition. There will be no charge for space, none whatever, and whether or not you have attendants there to take care of your fruit, it will be attended to by those in charge. We hope that every state will have representatives on the ground, whose business it shall be to care for the fruit. Now, some of the states have already put into cold storage one or two carloads or more of apples, ready for the opening on the first of May. Missouri, Kansas and New York have done this. Arkansas and Virginia and a number of other states have already had large quantities of fruit put into cold storage, so that we are sure that at the very beginning we will have a good display. They have engaged about one-quarter of the space already, and I will assure you they will have it covered, and we don't want the Central States to be behind.

I do not know exactly the status of the matter here in your state, how far along you have gone, whether your legislature is likely to appropriate anything, or whether you have any funds with which to work, but we hope that by some sort of means you will be there. We want you, and I shall be there myself after about the first of April until the end of the Exposition, and I shall see that everyone has fair play. I have charge of the fruit exhibits. The director-general has put that duty upon me, and I will say positively that everyone will have a fair show, whether he brings one basketful or a carload.

Now, I do not know that there is any use of going into any lengthy discussion of the matter. I simply state these facts to you so that you may be assured now, from first hand, because I am authorized by the Exposition management to say what I have said to you. It is now your matter to go on and complete this fruit show, and if I can say anything further that will be of any benefit to you I shall be glad to do so. I think, Mr. President, I have said sufficient.

Mr. Shirer: You might tell us where this Exposition is to be held; some may not know about the Pan-American Exposition.

Professor Van Deman: The Pan-American Exposition will be held at Buffalo, New York, beginning on the first day of May next year, and ending on the first day of November following. It is called Pan-American, but it includes all of the Americas; not only all of the United States, but all of North America, and not only that, but South America and Central America and the adjacent islands. And we expect to have a good exhibit from the Philippines and Hawaii, and Porto Rico will be there. Of course, we do not expect to have any fruits of consequence from those distant places, because they can not be kept. However, we will have some there from Porto Rico and Cuba, Central and South America. Agents have been traveling in those countries already for the purpose of inducing them to send exhibits, and the United States government has taken the matter in hand, and they are going to help transport the products of our new possessions. We will have tropical fruits from Florida, and some tropical fruits from California. The Exposition will not be a Buffalo Exposition, but an American Exposition—a Western Hemisphere Exposition. It will be all of the Americas. We expect to have everything from the cranberries of the far North to the cocoanuts and pineapples and mangoes from the South in that hall.

Mr. Shirer: What months will be the best for fruit exhibits?

Professor Van Deman: The American Pomological Society will meet there about the first or second week in September, and that, perhaps, will be the flush of the fruit exhibit. There are a good many members of the American Pomological Society here now who know that to be the case. I was talking with the Secretay yesterday, in Washington City, and he said that they had determined upon the meeting there. We do not know just what final arrangements will be made about the exhibit, but it will be in connection with the regular Pan-American exhibit. It will be in the fruit hall on the Exposition grounds, and the meeting will be there. We expect to hold them in Music Hall, at least the management has said that we can have Music Hall.

The Secretary: I have a letter from Professor Taylor to that effect.

Professor Van Deman: The prizes will be medals, I presume. We are not able to give cash premiums. It is almost impossible to give cash prizes. That was done at New Orleans, but finally they had to make a compromise and pay only part in cash. I was there myself with an exhibit from the state of Kansas. I will say that the medals will be given on merit; that is, any one who brings a creditable exhibit will get an award. If you come there with a small exhibit, and some one comes with a larger one, you won't be left out. Anyone who comes there with a small creditable exhibit will get an award. It is the intention to act upon this principle, and not upon a strictly competitive one, and consequently exclusive award to some of the more successful ones, but every one will get an award who brings something creditable, and those who bring things that are not creditable will get no award.

Mr. Woodard: Will the exhibits be by individuals or by associations?

Professor Van Deman: By individuals, by counties, by societies, by states—any way you wish.

Professor Lazenby: What arrangement will be made for judging these exhibits?

Professor Van Deman: Well, that matter is now practically determined, and the system of awards will be carried forward in the most approved manner. If any one wishes to know anything further upon this matter, I will be glad to answer his questions. I wish to say that there is a lot of Exposition literature and a lot of badges at the express office in my name, and I hope the Secretary will get them and bring them here for distribution, as I shall have to take the train at 7:30 and go back to Dayton.

L. B. Pierce: You haven't said anything about anything but fruit. That is a very small part of horticulture.

Professor Van Deman: The floral exhibits will be large. I spoke specially about the fruit exhibit because that is the part I have in charge. There will be a large floral exhibit, and I may say that there are now on the grounds very extensive displays of roses and various ornamental trees and plants. A large number of nurserymen have already arranged exhibits of roses and other plants.

The President: Spring bulbs?

Professor Van Deman: Spring bulbs, yes, sir; they are there in abundance. There are two sections in the Horticultural Building that will be filled with orchids and various hot house plants. There are 240 acres in the grounds.

The Secretary: Now in case a society or individual desires to make an exhibit, and has no fruit in cold storage, in case we have engaged space, will that space be reserved for us?

Professor Van Deman: We will have some way to keep it when you need it. We will have it for you at such a time as your exhibits are ready. The space will be occupied; I will say that we are not going to have any unoccupied space. You know it is a bad thing for a preacher to preach to empty pews. We don't propose to show any empty tables to an audience of millions.

The President: Gentlemen, this subject of the exhibit at the Pan-American Exposition is before you, and I think we had better pursue its consideration until we have arrived at something definite; either refer it to a committee or take whatever action that will finally settle the matter.

Professor Van Deman: Let me ask you, Mr. President, is the state legislature likely to do anything for you?

The President: I will call on Secretary Farnsworth to answer that. He has had some conversation with the commission that has been appointed by the Governor.

The Secretary: I am sorry to say that nothing definite has been done. I saw Mr. Swain, of Cincinnati, and invited him to be here; saw him at the State Fair in September, and requested that he be here. I sent him a program, and I think it more than likely that he will be here before the close of this session, but at present I am unable to give you any definite information. I may say that we have no funds that I am aware of, unless we can secure some funds set aside by the legislature, if there are such. We have, of course, a very small amount in our appropriation, but we can not use it for that purpose. I want to see this society make an exhibition there, but how we are to secure the funds I do not know, and unless we have some money, as well as enthusiasm, we can not make a creditable exhibit. I trust some way will be provided.

A Member: How much has already been appropriated by the legislature?

The President: Perhaps some of you know.

Professor Van Deman: You have three commissioners, I believe; Mr. Swain, I believe, Mr. McKinnon, of Ashtabula, and Mr. Patterson.

Professor Selby: I recall that an appropriation of thirty thousand dollars was made by the legislature.

Mr. Pierce: There are no apples in the state now worth putting in cold storage.

Professor Van Deman: The right time to get apples is right on the tree.

The Secretary: I don't think it would be worth while now to try to secure apples.

Mr. Ohmer: You will all remember that Ohio was to have made a display of fruits at the World's Fair in Chicago. Space was assigned us. We had no fruit put up in cold storage to make a display the fore part of the Exposition, consequently, although space was to have been kept for us, we were ruled out because we could not make a creditable showing at the beginning of the Fair. And, if you do anything, go at it right; put up your fruit in cold storage; but I agree with Professor Van Deman that the fruit should have been gathered from the trees.

Mr. Albaugh: I suppose it is generally known that we have biennial sessions of the legislature, and that there will be no session until the first of January, 1902, so that we can not expect anything further to be done by the legislature in this matter if nothing has already been done. There will be no chance to make an appropriation.

The Secretary: I understand there has already been appropriated thirty thousand dollars, but whether we can get any share of it I do not know.

Mr. Albaugh: These appropriations sometimes "cling." We had hard work for the Columbian Exposition, and after we had done a great deal of hard work Ohio got no show. I fully agree with Mr. Van Deman in regard to the award of medals. We happened to receive for our company a medal for having taken the first prize in one of the classes at the Paris Exposition this last summer, and we prize that medal more than if we had gotten a large amount of money. The medal is of more consequence, and, really, we appreciate it more than we would the money.

Professor Van Deman: Have you consulted that Board of Commissioners, to know if any portion of that money can be had?

The Secretary: I may say that we have not. This is the first time that this matter has ever come before our society. A year ago we were making preparations for our own home exposition, as Mr. Albaugh has intimated. After the collapse of that we have not been together as a body to do anything officially. So that this is the first time this subject has ever come before this society in its official capacity, and we therefore have done nothing.

Professor Van Deman: It seems to me that, in all fairness, the fruit-growers, and the florists, for that matter, ought to have some of that fund. Now, the state commission of New York has given the fruit-growers ten thousand dollars to make a fruit exhibit for that state. The state of Kansas has given quite a little sum, and several of the other states, Missouri and Washington have given money for that purpose, and there is no reason why the fruit-growers of Ohio should not be represented in that appropriation.

L. B. Pierce: With only thirty thousand dollars, and three commissioners, this society would not get more than fifteen or twenty dollars.

Professor Van Deman: I have had a long and sad experience with commissioners in these state expositions. I do not know anything about these gentlemen, and I do not wish to cast any reflections upon them whatever, but I say as a fact that usually the state commissions absorb in buildings and otherwise a little more that the actual appropriation, to the exclusion of the more worthy things.

Professor Lazenby: Can you tell us, Professor, whether Ohio has already expended much in buildings?

Professor Van Deman: Really, I do not know.

Chairman Scarff: Is there any further discussion on this subject? You should take advantage of the time now while Professor Van Deman is here.

The Secretary: Possibly it might be well for us to decide first whether this society will participate as a society in the horticultural exhibit at the Pan-American Exposition. That, it seems to me, is the first step that should be taken. If we do not care to make the attempt, it is no use to waste any further time in this discussion. If we decide we want our state to make an exhibit at this great Exposition in the neighboring state, not a thousand miles away, then let us discuss this matter fully and leave it in the hands of some one with power to act; but the first step should be to see whether we can secure any of the "sinews of war" with which to make an exhibit. I am not in favor of making an exhibit unless we have the means to do it with. You remember we made an attempt to make an exhibit at Paris, and it was such a feeble affair, finally, that I was ashamed to send it. We did, however, have fairly good success with it. If we make an exhibit we want one that we will not be ashamed of when we go down there.

The President: What is the pleasure of the society in this matter?

The Secretary: In order to bring it before the house I will make a motion that this society make an exhibit at the Pan-American Exposition at Buffalo next season.

Mr. Montgomery: I would like to amend that motion that this society express a desire to make an exhibit.

The Secretary: I accept that amendment; I am not in favor of making it unless we have the means with which to do it right.

Dr. W. I. Chamberlain: I would make an amendment to that; that we claim a portion of the state funds to be used for this purpose. Then, of course, we would have to go to the committee to see if we could get it.

Professor Lazenby: I dislike the word "desire." Of course, if we find we have nothing to make the exhibit with, and are unable, from lack of resources, we might perhaps give it up, but I should prefer to vote that we have an exposition or that we do not.

Mr. Montgomery: We can't have an exposition unless we have funds to have it with.

Professor Lazenby: We can't get the funds if we only express a "desire."

Mr. Albaugh: You can't get the funds, then.

The Chairman: It is moved that this society express a desire to make an exhibit at the Pan-American Exposition, and claim a portion of the state fund set apart for the horticultural exhibit.

The motion prevailed unanimously.

President Cushman (on the floor): Now, in connection with this motion that has already been passed, I move that the chair appoint a committee of three to carry into effect that motion.

Secretary Farnsworth: I second the motion.

Professor Van Deman: Are these commissioners regular politicians, or what are they?

President Cushman: I can not tell you that.

Secretary Farnsworth: I may say that Mr. McKinnon is chairman of the Finance Committee of the House.

Professor Van Deman: If you had commissioners who were in sympathy with the whole interests of the state there would not be much trouble about it.

Mr. Pierce: Thirty thousand dollars is not very much to divide between the whole interests of the state.

Professor Van Deman: It would give you two thousand dollars.

Mr. Pierce: I should think it very doubtful if we could get even five hundred dollars.

Mr. Shirer: What is the commission going to exhibit, does any one know?

Thereupon the motion by President Cushman was carried.

Chairman Scarff: Should not this be the work of the executive committee?

President Cushman: If the society wants to turn it over to the executive committee that is all right. Somebody has to do the work.

Secretary Farnsworth: The chair can appoint the executive committee.

Chairman Scarff: I appoint the new executive committee that is to be appointed, to see about this matter?

President Cushman: It should be the committee appointed for the ensuing year. I think that is the proper place for this matter to go.

Chairman Scarff: There would be no objection to appointing a new committee.

President Cushman: I suppose, in connection with this work, that it is understood by the society that if this committee can not secure funds enough, and devise ways and means whereby it can make a creditable exhibit, that the matter will be dropped. That is my view of it. Either give us enough to make a show or quit.

Mr. Ohmer: That's right.

Professor Van Deman: Mr. President and friends. Let me suggest that, if such a thing as that occurs, don't be discouraged utterly, but some of you make individual exhibits, and save the credit of the state.

Mr. Pierce: It seems to me, Mr. President, that that is the proper spirit to show. We can make an exhibit on our own account. I think three persons sent barrels of fruit to Paris and got two silver medals, and I see nothing to hinder each member of this society doing what he can, and all together would make a large show without much of an appropriation.

President Cushman: Now, I hope that nobody will think I meant that we should not make exhibits as individuals.

Mr. Sweet: It seems to me, as I understand it, that this committee was to be appointed to find out, and try, in the first place, if they could secure any of these funds, and if they could not, then this society would be out of it, and then as individuals we would take this matter up. It seems to me proper that the chair should appoint that committee, and that it should not be the executive board, but a committee to see about that one thing.

Professor Van Deman: I will say that, in case there is no state exhibit by the society, and different ones from Ohio as individuals send exhibits, there we will try to arrange them so that they will be an Ohio exhibit after all in some degree, and I will be there to see that that is done, and that Ohio individual exhibits will be taken care of. I remember that Missouri—I was at the Omaha Exposition, made the awards and spent considerable time looking over the exhibits there, and there were a number of individuals in the state of Missouri who made very creditable exhibits, and in some cases counties that did so as counties, and each of them got a medal, and the state itself got a medal, so that the individuality of exhibitors, if you managed the thing properly, need not be lost, even without a state exhibit. It will be a credit to go to the Exposition there, such as that will be, and make an individual exhibit which will bring an award.

Mr. Miller: I would like to ask Mr. Cox as to the use of boxes. He speaks about packing apples in boxes, and I would like to ask whether he considers them preferable to the barrel.

Mr. Cox: The dealers, most of them, do not want the box. Down at Huntington, West Virginia, we don't have any trouble in getting rid of the apples in boxes. We can put five boxes in cold storage where we can put one barrel.

Question: What is the expense of the box, as compared with the barrel?

Mr. Cox: A little bit more.

Dr. Chamberlain: Can you press them at all in packing?

Mr. Cox: Yes.

Dr. Chamberlain: Is it successful, so that they will not rattle in shipping?

Mr. Cox: Yes, sir.

Mr. Shirer: Do the dealers object to the size of the boxes?

Mr. Cox: I stopped in Cincinnati this morning, and in talking with some of the dealers they said they could sell a good many people a box of apples who wouldn't buy a barrel. Large apples won't pack so well in boxes as they do in barrels.

Professor Green: There is an apple that I spoke about, that I sent to Washington and showed to Professor Van Deman, and no one seems to know whether it is a new variety or an old variety, but certainly it is a good sort, I think.

Mr. Albaugh: It might be well enough for us to remember that Mr. Cox is in a Rome Beauty district. The Rome Beauty originated on the Ohio river, but a little further up.

Mr. Cox: About nine miles from me.

Mr. Albaugh: I thought it was farther than that. Rome Beauty probably has a narrower range than any other good winter apple that I know of. A few years ago I made a presentation to a college for the campus at Tiffin of a number of apple trees and other trees, and not long ago

I saw the Rome Beauty apples there from those trees, and they were not more than half as large as that Rome Beauty (illustrating). I have on my place now a lot of Rome Beauties that have been planted for forty years. While it is a fine apple in the region of Mr. Cox, and probably one of the most profitable, it is an apple of narrow range comparatively. It seems to do well in that rich limestone, probably freestone, of the Ohio river, but not well every place. It is not like the much-despised Ben Davis that turns up smiling almost any place.

Mr. Harrison: The Rome Beauty is a nice apple, but we don't get an apple more than two-thirds that size, and they are not good keepers.

Professor Van Deman: I was going to say that the Rome Beauty is one of the best apples in the state of Virginia for a commercial apple, but perhaps the Ben Davis and the York Imperial beat it; but it is certainly excellent in Virginia, and they have found that it does exceedingly well in New York State, and the western New York apple growers, right in the Baldwin regions, are now beginning to plant the Rome Beauty and are top-grafting it. I had a request from a man in western New York for scions of the Rome Beauty, and I sent down here in Ohio and got them for him. In western Colorado it is one of the best apples on the Grande river. I have been over there and seen the trees bearing, and it does well, but, as Mr. Albaugh says, its range is somewhat limited. It does not do well everywhere, and I am surprised that along the lake shore it failed to develop. I told the folks in western New York that they must not expect to get as large specimens as they saw from the South. It certainly is better in quality than the Baldwin, and is more handsome than the Baldwin, and they will find that it certainly will be an improvement on the Baldwin, but that is a thing for every one to work out for himself. Now, in the state of Kansas, we are just trying to grow Rome Beauties. They say it is a very difficult thing there to get the trees to live, and that the Ben Davis is much more rugged, as it is everywhere.

Dr. Chamberlain: I am anxious to know whether the Rome Beauty will do well in my own locality, in Summit county. Mr. Sweet has an orchard (he is right here, and can speak for himself) which has been exceedingly successful with the Rome Beauty. You will see that some of these have colored very high indeed, very fine indeed. Mr. Hunt bought Mr. Sweet's crop and put it into cold storage at Euclid. These are samples, and Mr. Sweet said that they were nearly as large as that (illustrating). Now, if they will grow as well as they do in Mr. Sweet's orchard, I want to plant about one hundred and fifty of them this fall—that is, next spring—and I will be glad for any testimony along our latitude. Mr.Hunt says they keep a great deal better than the Baldwin. As to their quality being better, I should decidedly dissent from that. I think the quality of the Baldwin is immensely superior. Our Baldwin is immensely superior to any Rome Beauty that I have ever seen.

L. B. Pierce: This is one point we should not lose sight of. This fall has been a remarkable season for the development of apples. In Summit county we have Ben Davis that grew very fine this year, the first fine Ben Davis apple that I have ever seen in Summit County, and I lay it to having such a nice fall to develop, but ordinarily they won't do it. I believe that the Rome Beauty is an exceptional apple for northern Ohio.

Secretary Farnsworth: In regard to the Rome Beauty, we have grown them in a very small way for twenty- five years, but have not been very successful. The trees are not hardy and healthy. Now, as to the color, I remember that six, eight or ten years ago, Mr. Cox sent me thirty-six Rome Beauties, which weighed thirty pounds. They were as finely colored as anything I have ever seen. In our particular locality I do not consider the Rome Beauty successful for market. We have perhaps a half dozen trees. From my own experience I would much prefer the Jonathan. And, by the way, I do not see why the Jonathan is not grown. It is a slow growing tree in the nursery, and I know that customers will object when the tree is delivered, but the Jonathan is better when top-worked on some other variety. I tried them on the Northern Spy, and I consider it one of the most profitable winter apples in our section. It is not like others, handsome to the eye and disappointing to the taste. It has beauty and all the flavor that any one can ask for, but, as I say, it has been introduced very slowly because of the slow growth of the tree.

Mr. Pierce: Mr. Cox has an apple here on which the tree has spent some of its force putting red color on it, and not so much size.

Mr. Bear: I believe the Rome Beauty can be grown in our climate here. I have some trees that have been bearing the past few years, and they color up very well. I thought at the time of the State Fair I had quite as good a Rome Beauty as Mr. Cox had, but he got the decision over me. My trees have been bearing regularly. I think the Rome Beauty in the nursery should be budded. I had some experience a few years ago grafting, and the trees you get are very small, but in budding them you will get fair-sized and good shaped trees, and I think the Rome Beauty will do to plant in this latitude. I expect to use a good many of them myself.

Mr. Freeman: I have had some experience with the Rome Beauty, probably fifty trees in my planting of one thousand or fifteen hundred, within five miles of where Brother Albaugh lives. If not sprayed it yields more rapidly to the black scab than any other apple I have on the place. So if you raise Rome Beauty, spray it well. I venture to say that men growing Rome Beauty here will say that it has to be sprayed or it is not of much account on the tree.

Mr. Warder: Mr. Chairman, I presume that the sooner we realize that all apples have to be sprayed the better for all of us.

Dr. Chamberlain: My experience is that the Jonathan is short-lived and a poor bearer. I had only nine trees, and they are all dead but one, and I can say truthfully, as between the Baldwin and the Jonathan, there is ten dollars in the Baldwin to less than one dollar in the Jonathan. It is a beautiful apple of fine quality, but the trees are short-lived and are not good bearers.

Mr. Brawley: Mr. Chairman, we have tried to get the apple that brings us the most money. We grow the Rome Beauty more than any other. We are on limestone hills, and on those lands that are limestone they seem to do better than any other place. We would like to have Baldwins very much if we could grow them, but I know of a number of orchards that have had Baldwins in them that have been dead twenty years. They have the sun scald and are short-lived. Now, as to the profit, you take a Rome Beauty apple tree that is ten years old, and it is much more profitable than any other apple we can grow (that is, in limestone soil), and about the thirty-ninth parallel of lattitude. In our plantings we shall plant more Rome Beauty than anything else, because it brings us more money.

Mr. Sweet: They have called me in question, and I'm not ashamed to stand before this plate of apples (Rome Beauties), even if I am to stand before the rest of you. These apples grew upon my farm. The farm is a chestnut soil. Where these trees stood is a high sandy knoll underlaid with sandstone. I have nine trees; I wish I had nine hundred from the experience I have had with these. We took over one hundred bushels of nice apples from those nine trees, and had seventy-five bushels of nice ones that we picked up from the ground (nice ones, I say), that would pay to go to market with as wind-falls. My experience has been that it wants a good deal of pruning. It grows thick-topped and wants thinning out. I believe I have cut out considerable more top than I have left on it. I set these trees out in the spring of '76, my centennial orchard, and I have had about three such crops as we had this year on those nine trees, and some most every year, but not as full a crop. It was worth walking ten miles to see those trees. After the apples had fallen off of all the rest of the trees these hung loaded and had not fallen badly. There were plenty left on, and they were beautiful to look at—just as beautiful as those apples on that plate.

Mr. Pierce: Perhaps it was the late season that accounts for the nice apples.

The President: Mr. Sweet, it has been suggested that the late season has been the means of your growing as nice Rome Beauties as those. How have they done in other years?

Mr. Sweet: Two years ago they were colored nearly as fine as they were this year, but when they bore the other fine crop, I think it was five years ago, they were not as highly colored. There were lots of them this year in the thick foliage that were not as highly colored as these. Of course, these are as nice as I had. (Laughter.) In the shade they won't color up as well as this. I am more than pleased with what few I have, and I grafted quite a number of small trees to them last spring.

Mr. R. J. Tussing: I would just state, Mr. Chairman, that down in Fairfield county, south and east of me, they had a wonderful crop of Rome Beauty apples four years ago, but since that time they have been an utter failure there. Last year they had considerable of a crop, but they were scattered and very much affected with the black scab.

Dr. Chamberlain: Did you spray?

Mr. Tussing: No; we did not spray.

Dr. Chamberlain: You have got to spray the Rome Beauty.

Mr. Tussing: They are discouraged there now, and I will state that we have land there similar to Mr. Sweet's. It is a chestnut ridge. They want an apple that they don't need to spray.

Mr. Sweet: There is another point I want to agree with Dr. Chamberlain on, and that is the quality; I don't think they compare with the Baldwin.

Professor Van Deman: Do you call the Baldwin an apple of high quality?

Mr. Sweet: Well, I think it is the best market variety there is in our part of the country.

Professor Van Deman: Mr. President, the Ben Davis will beat it for market. It is beating it today in the markets of Europe. It will bring more money today in Europe than the Baldwin, and it is running a hard race right in western New York. And, as for the quality of the Baldwin, I never considered it a very good apple. Now, an apple grown in the northern states has a different flavor from one grown in the southern states. Even the Ben Davis grown in Missouri or Arkansas is a very different thing from the Ben Davis grown in New York. It is very much better, and a Baldwin grown in New York is very much better than a Baldwin grown in Missouri or Arkansas.

Mr. Pierce: Isn't it a fact that a Baldwin grown in New York is poorer than one grown in northern Ohio or Michigan?

Professor Van Deman: Well, I do not know; they may be so.

Mr. Pierce: In western New York they are very small, and are not as good an apple as they grow in Michigan.

Professor Van Deman: The Baldwin growers in western New York are changing to Ben Davis. I have been hearing these folks talk that over and over in Rochester and at farmers' institutes throughout New York, right in the apple regions, in the very thick of the apple country, and a great many Baldwin growers are becoming disgusted on account of failure to bear, and they are beginning to thin them out. I never considered the Baldwin of very high quality, and I never did like its peculiar habit of having these little black spongy specks in it.

Mr. Bear: Mr. President, I can say that I am a great friend of the Baldwin apple, and I am certainly a friend of the Ben Davis, and I would like to have some of these gentlemen who extol the Ben Davis go with me into the Dayton markets. I would like to have them go around with me and see if the Ben Davis will take, even if grown in New York. Now, they sell lots of New York apples right in Dayton; but the Ben Davis won't sell in Dayton, unless the people can't get anything else. You may call it the Kentucky Streak, the New York Pippin, or anything else.

Mr. Shirer: Call them Ramboes.

Mr. Pierce: The Ben Davis isn't ripe yet for two months.

Mr. Bear: Well, that may be, but it seems to be ripe.

Mr. Montgomery: If we have discussed that long enough I would like to refer back to Mr. Farnsworth's report. He recommended the Mont Morency and the English Morello. I sell direct to the consumer, and I have been afraid of the English Morello on account of its black color. Where do you sell, Mr. Farnsworth?

Mr. W. G. Farnsworth: We go to the commission house. I have sold quite a number of them. They are very dark, and not as large as the Mont Morency, but are later in the season, and they brought a higher price than the Mont Morency did this year. They brought three dollars to three dollars and a half per bushel. If they are sprayed well they are not injured very much by the curculio. They are enormous bearers while young.

Mr. Sweet: Mr. Chairman, here is a plate of Ben Davis, a plate of Baldwins, and a plate of Rome Beauty grown within a stone's throw almost of one another, and they are all beautiful apples. I think you may bring a hundred men or a hundred women here, and they will pick that Baldwin both for cooking and eating. Bring them from all over the country; they will pick that Baldwin for eating or cooking. The Rome Beauty is an own cousin to the Ben Davis, but a little better. (Laughter).

Mr. Brawley: While this talk is going on I may say that we grow the Ben Davis, not in so large a way perhaps as the Rome Beauties, but we can sell the Rome beauties and all the other apples we have and the Ben Davis will be a prime apple when they are gone. When they are gone the people will buy the Ben Davis freely. Our population is largely miners. We can not sell a white apple, but they will buy a red apple, and the keeping qualities of the Ben Davis are superior to anything we have, and as a market apple there is money in them.

Mr. Cox: I would like to ask if the German Prune is more liable to drop than the other varieties.

The Secretary: I think, Mr. Chairman, they are, especially while young. My experience has been that the German Prune is a rather shy bearer. Now, some one spoke of the Damson, and I suppose that where the black knot is very troublesome they can hardly be recommended, but

I have never been troubled with the black knot. I have perhaps had an occasional black knot for twenty years, but for the last few years, since I have been spraying with the Bordeaux mixture, I do not think in the fifteen hundred plum trees we have a dozen black knots. I have about one hundred and fifty French Damsons, and a few of the Farleigh Damson. I have been planting extensively of the later plums; I think we make a mistake in planting too extensively of the early plums. Now, we know if the ladies are assured of a bountiful supply of good plums in September and October, they will not buy many in August. I have been planting largely of the Monarch and the Grand Duke, which is certainly a good one; a few of the Archduke, of the Kingston and the Black Diamond, which are very similar to the Monarch. The French Damson is considerably larger than the other Damsons and very fine in quality, and those which we had kept us picking over the entire season of about one month. If you want them sour, pick them before ripe; if you want them fully ripe they will hang on the tree and the frost will hardly injure them.

Mr. Cox: How do they compare in size with the Shropshire Damson?

Mr. Farnsworth: They are much larger and have a much better foliage.

Mr. Brawley: What is their season?

Mr. Farnsworth: You can pick them any time from the first of September until the first of October if it doesn't freeze too hard.

Mr. Harrison: Now, our experience has been that we could get rid of ten crates of the Shropshire Damson to one of the French Damson.

The Secretary: My own are about all top-worked on the Lombards, and that is the only use I have for the Lombard. I would not set out a tree of the Lombard for market purposes. And, by the way, I think that is the best way to get some of the best varieties of apples that we have. I presume that the Jonathan does not succeed everywhere. They will bear a little closer planting. But the discussion this afternoon, I think, emphasizes the fact that we must study our local conditions. We have heard one member say that the Rome Beauty is a profitable apple and another that it has no value. That is simply oftentimes because the man is different. Some of these varieties will bear without any special care while others require a great deal of care.

Mr. Freeman: I would like to inquire whether in your top work you bud or graft?

The Secretary: We usually graft in the spring, and bud the failures in August.

Mr. Freeman: I have one hundred of an English variety, and I don't like to earn my money twice. I have had success with the Damson and I have had no success with the other plums.

The Secretary: We have been very successful in grafting.

Professor Van Deman: I should like to ask if there is any one here who has been growing Missouri Pippins, and also the Stayman.

Mr. Freeman: I have had some experience with the Missouri Pippin. I received it from one of the great apple orchards of Kansas.

Professor Van Deman: I mean Ohio grown.

Mr. Freeman: I have grown this for twelve or fifteen years, and it grew very fine this year.

Professor Van Deman: Are they good size?

Mr. Freeman: Only medium size.

Professor Green: We have a number of young trees of the Missouri Pippin, but they overbore and were small. They begin bearing very young. I think if they were thinned they might be fair size, but if left they are too small.

Professor Van Deman: I wanted to bring this question up because we need in all parts of the country some variety as a filler between the permanent apple trees. I do not believe in planting peach trees between apple trees, but to plant apple orchards as apple orchards; and this Missouri Pippin has been proven to be the best filler in the western states, and it is being introduced in an experimental way in the more eastern states. Now, I have knowledge of the Missouri Pippins growing in Ross county. A friend of mine brought the trees from the west, and he found that they bore very early, as it does in the west, and the apples were all good, fair size, medium size. Now, the Missouri seems to be successful. As long as the trees are not allowed to be very much overloaded they will bear apples of good marketable size. Mr. Wellhouse, of Kansas, who is called the apple king, and he probably is, told me that he made more money off the Missouri Pippin than he did on any other variety in the orchard, and he planted all of the leading market varieties. That is very much like the Missouri (picking up an apple). It is a fair-sized apple. It is such an enormous bearer that they rarely get larger than small to medium size, but when they are thinned they will average a fair size. I have seen them bear at two years old in the nursery row; I have had them do it in my own nursery. The Missouri Pippin in Kansas, three years old, is expected to yield a crop; that is, three years from planting in the orchard, and by the fifteenth year it will have borne itself to death, and you want to cut it out to give the permanent trees the room.

Mr. Montgomery: I would like to ask if the Missouri Pippin has any advantages over the Wagener as a filler. The Wagener is better in quality, very handsome, but the tree is deficient. The root system of the Wagener is very deficient, but top-worked on the Ben Davis or the Northern Spy it would be excellent for a filler. The Wagener trees won't last over fifteen years; they are very weak. Some will do very well, but the majority of them have very poor roots. This is a good tree, but it overbears, and if you thin them out they will die.

Mr. Woodard: In using a filler how far apart would you plant the trees?

Professor Van Deman: Forty feet with the fillers between them, making twenty feet.

Mr. Pierce: Each way?

Professor Van Deman: Yes, you can have it each way. I have a different system from that, but in the west that would perhaps be a little too far. I used two rods for the permanent trees in Kansas—used the hexagonal style; that makes the rows twenty-eight feet and six inches instead of two rods, and then put the fillers between, making the trees a rod apart, but in most of the eastern states I think forty feet is all right.

Mr. Freeman: The keynote of this apple question is that we would like to know the name of some varieties that are adapted to certain districts. We have been bringing apples from one section of the state to another, and I think I have experimented as largely as any man in the country, and I would say that if I were to plant four varieties today for profit, they would be the York Imperial, the Minkler, the Jonathan and the Park Spice. The Park Spice is the most continuous bearer I have, and very much in appearance like the York Imperial. It is an apple I received from Mr. Parry, of New Jersey, twenty-eight years ago in August, with the Vermont Beauty and the Franklin. The Franklin is a fall apple, a good bearer, and resembles the Yellow Belleflower. Being a fall apple, it does not pay well. These varieties that I have mentioned we can safely plant in this section and be sure of success.

Professor Van Deman: I wish you would describe the Park Spice.

Mr. Freeman: It is an apple that resembles somewhat the Baldwin, not quite as firm in flesh as the Baldwin. Not knowing that there was going to be any exhibition of apples here I sold my crop of Park Spice.

Professor Van Deman: How late will they keep?

Mr. Freeman: I kept them two months; I will bring the plate in. I have a plate of very imperfect ones here.

Professor Van Deman: We might as well say we are after red winter apples. That's about the size of it. The apple that will attract the eye is the one that will sell, and as a usual thing that is a red apple, and it is hardly worth our while to talk about a green or a yellow colored apple, unless it is the Grimes' Golden. That will sell in a fancy market. The marketman says he wants a red apple to sell, and we'll have to yield to that whether we like it or not.

(Here Mr. Freeman returns with the plate of Park Spice.)

Professor Van Deman (picking up one of the apples): That is a fair apple, if it is good quality.

Mr. Freeman: I say they will grow large.

Professor Van Deman: How soon will it begin bearing after it is planted?

Mr. Freeman: My trees are twelve years old.

Professor Van Deman: You have not answered my question about the Stayman. That is an apple of the Winesap type, a seedling, and oiginated at Leavenworth, Kansas. My present opinion is that it is going to supersede the Winesap. The Stayman is as good as the Winesap in quality; it is fully as good in color generally, though some have complained a little about the color not being quite as high. In size it is decidedly better than the Winesap, and the tree is very much better. It is a good bearer. The Winesap, we know, is ill-shaped as a tree.

Mr. Freeman: I have to say for this apple that it promises to be one of our leading varieties, but I haven't had experience enough with it to recommend it. They hung on until the latter part of October. I believe it will supersede the Winesap, which has the appearance of it, and somewhat the same flavor; and, as I understand, it does not mold at the center as the Winesap does when it has ripened up.

Mr. Albaugh: How about the Grimes' Golden?

Professor Van Deman: I mentioned that as one of the yellow attractive apples. If I were to grow any yellow apples I would take the Grimes' in preference to any other. I think it is good as the Seckel pear, and it brings as high a price as any apple in the market. I had ten barrels of them, and I got a cent apiece for the apples. They brought me about five dollars a barrel. I didn't retail them myself, but had the groceryman do it for me, and I traded them out. That is the way I got five dollars a barrel. (Laughter.)

Mr. Bear: While we are discussing the apple question in regard to planting trees as fillers, why not put in early apples, early varieties that we can sell in June and July? I have never heard that discussed in this society yet at any time. Why not use early apples for fillers, something that you can have from the twentieth or twenty-third of June and on until July? Now, I know there is a market for them. I have tried it myself in a small way, and know that I can get a good round price for early apples, and can sell almost any quantity of them in the Dayton market.

Mr. Freeman: I should like to answer the brother that wanted to know about early apples. I have had some experience in this matter, and I can say that it does not pay to raise apples that come in competition with the berry crop. It will not pay you to pack the market. The apple that will came on just after the blackberries are ripened is the apple that will strike a market and have some advantage.

Dr. Chamberlain: I don't believe any one can make any money on early apples except those who live close to some large city and go to market themselves. As to shipping them, there is no money in that. The only early apples that I can make any money out of are the Red Astrachan and the Maiden Blush, which you can keep quite a while. That is not an early apple, but it is a fall apple, and even those, to make any money out of, I have to take to Cleveland, twenty-five miles, and forty bushels at a load. The money for the orchardist that wants to get say fifteen hundred or two thousand dollars out of his place has got to be in the red winter apple, I believe.

Mr. Bear: Now, I have talked with quite a number of people about that. They say, "Well, I can't sell them." Now, I know you can sell them. I have sold apples and I know. It has been about three years since I first tried early apples. I don't care whether it is anything near ripe if it will cook, and I will guarantee if Dr. Chamberlain will send me one hundred bushels of Wealthy apples on the fourth day of July, I can take them and get a dollar and sixty cents a bushel. I sold them at a dollar and thirty-five cents a bushel, and I could not commence to supply the small trade that I had, and I raised them to a dollar and sixty cents and they were still willing to pay that, and my Duchess brought me a dollar and sixty cents, and I sent them to the Dayton markets at $5.50 per barrel. Take the Tetofsky, I have never sold them for less than a dollar and forty cents a bushel. I am not raising very many of them, but at the same time I know what can be done. I know men that just begged me to give them early apples, even if they were green. Some of our prominent grocers over in Dayton, from Friday to Monday, said they could not get any to sell in their groceries. Now, if you put them on the market along about July you would change your mind. But, if you want early apples in Cleveland, or any other town, you have got to create a market by giving the people good cooking apples. You want something that cooks quick. I think the Early Red takes entirely too long to cook. In the hot weather the people want something that makes a good pie as soon as it goes into the oven.

The Secretary: My experience has been the last few years that good early apples have paid me better than the later ones. Dr. Chamberlain covered the ground very well; for our apple market one does not want any more early apples than just enough to supply the local demand. He can not barrel them and ship them, or drive twenty-five miles with thirty or forty bushels of apples. My early harvest this year brought me one dollar, but last year I sold all of my early apples for sixty cents a bushel, and I found them as profitable as the later varieties.

Professor Lazenby: In corroboration of this I wish to say that at the last meeting of the Columbus Horticultural Society, Mr. Sutton, one of the commission men there who handles apples very largely, stated, and emphasized it very strongly, that early apples are in the greatest demand in the Columbus market, and he says he don't see why the growers don't plant more early apples. He says that has been his experience since he has been on the market.

Mr. H. H. Aultfather: A few years ago we were planting winter apples and the planting of fall apples were neglected. Today we are shipping apples in baskets to Pittsburg by express from the twentieth of August to the twentieth of October, and we think them the most profitable apple we have. I buy them and put them up in 14-quart baskets. I don't fill them too full. You have got to put them in so they will show, and you will find that they will sell for from fifty to sixty cents.

Mr. Pierce: Do you pile them up in the baskets?

Mr. Aultfather: No. If you have them too full they will bruise the apples on the top of the basket. I would rather not have the basket quite full to send to market than to have it overfilled and have the top ones bruised.

Mr. Brawley: About what do your apples bring you per bushel?

Mr. Aultfather: Up to September, this year, they ran thirty-five cents for 15-pound baskets, but last year they ran below that. I think from what Dr. Chamberlain said I would lose money to ship them to Cleveland.

Dr. Chamberlain: One year I made out of four Astrachan trees one hundred dollars net cash, but that was the year when apples were scarce. My Maiden Blush, nice Maiden Blush as I ever saw go into Cleveland, I could not get but twenty-five cents for a market basket full, and I had to pile them up until there was a full half bushel. There is no money in them that way. When you haul them twenty-five miles and pay for your baskets there is no money in them.

Mr. Pierce: That is forty-five cents per bushel. That is only two hundred dollars an acre. What do you want better than that?

Dr. Chamberlain: Well, you have got to take your labor and teaming out of it.

Mr. Pierce: Mr. President, you haven't got to do that where I live. I was offered ninety cents per bushel for my apples, the Tetofsky and the last of the Red Astrachan; I was offered ninety cents a bushel by Southworth & Company, in Cleveland.

Dr. Chamberlain: This year?

Mr. Pierce: Yes, sir, this year; and to send them by the trolley line at a cost of twenty-five cents a hundred pounds. I took them to Akron and shipped a few bushels. I hadn't a great many. I got 40 cents a basket for them and let them go. I could sell every year to Southworth & Company, and deliver them by trolley line from Akron for more than I could sell winter apples for.

Professor Van Deman: Now, this question is well worth discussing, because we ought to fully understand ourselves with regard to this early apple question. I have heard it myself in my own little way, and I have found from all the discussions and all the experience that I have been able to bring to bear upon the question, that the early apple business can very easily be overdone. A limited amount of early apples is all right. Wherever you can supply your local market it will do very well, but when you get away some distance it is exceedingly risky. Now, there are people in North Carolina and Tennessee and Virginia, who tried this early apple business, and I know one gentleman who has a large orchard of Red Astrachan and he has never gotten one-half enough out of them to pay him, and, as a rule, he lets them go to waste. And then there is another thing that has already been said about this matter, and that is, that it is not profitable to the fruit grower to ruin his own berry market by filling it full of early apples. They come into contact with the blackberries, so that we are running right against our own interests where we are growing too many of these early apples. I would caution anyone against planting extensively of early apples, and if I were going to plant an apple of about the season of the Maiden Blush, I would plant the Jeffries. It is a good-looking apple and a most delicious one.

Mr. Pierce: I do not know how many times I am allowed to speak on this question (renewed laughter), but I have got from 35 to 40 cents a half-bushel basket for Tetofskeys when some varieties were going a begging at 20 cents a bushel. It makes all the difference in the world about early apples, how you put them up. If you let them ripen up and put on a nice color, you can get almost your own price. Apples sold at $1.75 a bushel for a week in the Akron market. I am satisfied, Mr. President, that there is not enough to keep up with the increase in population. And as to coming into competition with the berry market and injuring that, I can not see how they can come in competition exactly.

Mr. Shirer: Now, when it comes to telling big "yarns," Dayton can keep up with Akron. Once upon a time, in Dayton, Maiden Blush was selling at 10 cents a peck and going begging at that, and I was selling Chenango strawberries at 5 cents a quart. (Laughter.)

Mr. Buechly: My experience corresponds with that of Mr. Pierce in handling early apples such as the Early Transparent. This fall our market was in better condition for early apples than it was for winter apples. I think that we growers ought to grow enough apples to supply our local demand, and we can get fair prices for them, even better than for the winter apples, I think.

Mr. Bear: I would like to caution anyone against planting more of the early apples than he can handle well. I started out using them as a filler to the winter apples.

Mr. Shirer: I thing there is a misunderstanding about "fillers." What do you mean by fillers?

Mr. Pierce: That was explained here, that you plant your winter apples 40 feet apart and put some other apples in between them to take out in 15 or 20 years. You were not listening when that came up.

Mr. Bear: Now, I would not like to have anyone plant so many apples that he could not sell them. I want to know what you call fall apples and what you call summer apples? I am talking about summer apples, and I believe July and August are in the summer season. Now, the Wealthy apple I call a summer apple, yet it will last until September. So will the Duchess. I didn't say wait until it is ripe. Wait until it is big enough to cook, and you can raise a good many thousand bushels around Dayton and not oversupply the market. As for taking the place of berries, you can not make anybody eat a berry pie when he wants an apple pie. (Laughter.)

Mr. Montgomery: I would like to ask Professor Van Deman if he has had any experience with keeping the Grimes' Golden in cold storage?

Professor Van Deman: I do not know about that. I asked a gentleman the other day somewhere in the Eastern states and he said he had kept some until April in an ordinary cellar, but as a usual thing the Grimes' Golden is done at the holidays.

Mr. Pierce: I have kept them until March in a cellar.

Mr. Freeman: My experience with the Grimes' Golden is that they are short lived. About the third crop they pass away. That is against their being planted largely, although we know they are one of the finest apples that goes into market.

Professor Selby: What is the life of the Grimes', in your experience?

A Gentleman: Mine have not reached over twenty years.

Professor Selby: How about the Grimes' as a filler?

The Secretary: Right in this connection, I would like to inquire if anyone has found that the top working of the Grimes' on a hardier variety has been successful? Now, if we can top work the Grimes' and lengthen the life of the tree, it will be a very decided benefit.

Mr. Kuth: What time do you have supper in this town? (Laughter).

Dr. Chamberlain: That is not a horticultural question.

Professor Van Deman: I hope you will pardon me for wanting to talk any more, but I would like to drop just this one idea with regard to the whole apple question, and especially as to late keepers, that if you will add some nitrogenous manure to your apple orchard you will prolong the ripening period. As far as I have found, the best thing to use is nitrate of soda. It is the cheapest nitrogenous manure, and it certainly has a magical effect. It ought to be applied in growing season. If it is applied in this time of the year, it will be largely lost. The Massachusetts Agricultural Experiment Station has made some experiments, and have demonstrated the fact that nitrate of soda is a very profitable orchard manure. It is one of the commercial manures.

Mr. Pierce: Will it retard the ripening of the apples?

Professor Van Deman: Yes, sir. I do not mean to say that very much of it is necessary, but a little amount of it is certainly beneficial, not over two hundred pounds to the acre. Now, stable manure has nitrate in it, and so have some of the other manures.

Mr. Ohmer: Professor Van Deman need not apologize for talking so much. I am very glad, indeed, that he came when he did and that we have made as good use of him as we have. The discussion we have had upon the various kinds of fruit, early and late, reminds me of an experience I had some years ago. I had a thousand barrels of apples put away. It was late in the fall, and there was a gentleman from the South who wanted to buy some apples, who came up to see me, and asked me what varieties of apples I had. I had the Belleflowers and the Baldwins and a half dozen others of the best varieties, but he said "haven't you got any of the Pennocks?" I said no, and he said that is the only kind of apple that he could sell.

Professor Green: What Professor Van Deman said is that it hinders, but I think I would say that it promotes the growth, has the effect of mulching.

Dr. Chamberlain: That, Mr. Chairman, is just what I was going to say. Plowing will retard the ripening and it will prevent so high coloring as compared with sod or clover.

The Chairman: I would like to announce several committees:

Committee on Vegetables.
R. J. Tussing,
H. H. Aultfather,
W. R. Lazenby.

Committee on Fruits.
W. G. Farnsworth;
J. J. Harrison,
C. W. Montgomery.

Committee on Business.
E. M. Woodward,
F. H. Ballou,
C. C. Sterling.

Committee on Membership.
W. N. Scarff,
J. C. Bear,
A. Shirer.

Committee on President's Address
E. M. Woodward,
Professor Lazenby,
J. C. Bear,
R. H. Warder,
J. J. Harrison.

Thereupon, on motion, the Convention took a recess until 7:30 p. m.

EVENING SESSION.

Wednesday, December 5th, 1900.

The meeting was called to order by President Cushman at 7:30 o'clock, pursuant to adjournment. The President announced that the first thing in order would be a piano duet, which had been arranged for by the local Society.

After the music, the President said that in continuation of the discussion upon the apple question, which was interrupted by the intermission, we will now listen to a paper by Professor W. R. Lazenby on

STRUCTURE AND VARIETIES OF THE APPLE.

Professor Lazenby: Mr. Chairman and Members of the Society:—I have a few notes on the structure and varieties of the apple.

Although the apple is the best known fruit of temperate zones, and many of its different varieties are readily recognized, there is yet a lack of definite knowledge regarding the requisites or essentials that go to make a perfect specimen of this orchard product. What is the apple structurally? It is not simply the matured ovary or pistil of the flower like a peach or plum. It is not the enlarged fleshy receptacle, or end of the flower-stem, like the strawberry. It has a structure peculiar to itself. If we examine the flower of any of our strictly pomaceous fruit plants, we shall find that the pistil or ovary is made up of five leaves or carpels, which united form five distinct cells. Continuing our observations, we find that the calyx of the flower is closely and firmly adherent to this ovary.

After the ovary is fertilized and the young apple begins its development, we find that it is the calyx that grows the most rapidly, and forms the larger part of what becomes edible. The receptable, or stem that bears the ovary, also forms a part of the flesh of the apple, while the true ovary simply develops into five papery carpels, which include the seeds, and forms what is termed the core.

Now anyone that has looked at an apple cut crosswise can see this very distinctly. In many varieties there is a well-marked green line surrounding the core. Most vegetable physiologists believe that part is simply the enlarged stem, and certainly all the remainder is the calyx of the flower. This you see makes the apple very different in structure from our other fruits, where it is simply the ovary that develops.

In describing varieties of the apple the external characters first claim our attention. Then follow the internal characteristics. The principal external characters are shape, size and color. In addition to these, however, there are the basin and cavity. This you all understand is the cavity (illustrating) with its stem, and the basin with its eye, and the skin or surface including the dots therein. I presume it has been a surprise to some as to what causes these little dots that we find in all of our apples, scattered promiscuously over the skin or surface. They vary in shape, and size, and color, and form in many varieties quite a good distinguishing characteristic. Now these dots are nothing but the breathing pores in the calyx, that is, they correspond to what botanists call the stomates in the leaf, and as the calyx grows, we still have evidence of these dots in the surface of the apple.

The principal internal characters are the core, seeds and texture of the flesh. The qualities or characteristics that seem to be in demand in apples at the present time are: First, bright color; second, moderate and unform size; third, uniform shape; fourth, richness; fifth, a spicy flavor; sixth, firm, but tender and melting flesh; seventh, a small core with few seeds; eighth, a smooth, thin skin; ninth, good keeping qualities; tenth, good cooking qualities.

The above qualities belong to the fruit alone, or to apples, dis-associated from the tree, but in addition, the commercial grower demands productiveness, healthfulness, hardiness, evenness of maturity in fruit, and firm adherence of the fruit to the tree.

Let us briefly discuss the above qualities in the order mentioned.

Although color is a character liable to variation, it makes a high rate in pomology, and is oftentimes of greater value in determining the salability of a variety, than form, size, and richness taken together. With our present standard of taste in color, a bright red seems to be the favorite, and I suppose there is no reason why our ideal apples should not conform to this demand.

It is unnecessary to discuss the advantages of medium uniform sized apples. Just how large the ideal or perfect apple should be is not easy to determine. For general purposes an apple weighing from six to eight ounces is perhaps the most desirable. In some markets and for special purposes, however, apples not to exceed four or five ounces in weight may be preferred.

I find that some of the large boarding houses and the hotels in Columbus will pay more for what we would call under-sized apples, especially where they serve them as a dessert. Of course, guests will take a whole apple, and a medium-sized specimen is all that they ordinarily require. Sometimes a large apple seems to be in demand and sometimes a very small apple. I have known that in New York markets an apple of the size and quality of the Lady meets the demand better than any other. This is especially true about the holiday season. They use these small apples a great deal for decorating Christmas trees, and in the large mission schools, and they go a great way further than large apples would. The Lady apple is excellent in quality and pleasing in appearance.

Whether the best size expressed in weight be a little more or a little less, it is important that it be uniform. A variety or collection of apples where the specimens are nearly equal in size, is always more valuable than one where there is a considerable degree of variation, even though the latter collection may average the larger.

In commercial orcharding where there is much variation in sizes, careful grading has been found essential to the best success in marketing.

Form is one of the most permanent characteristics of the apple, and is, therefore, one of the most valuable distinguishing features of a variety. All things considered, the round or globular shape is most desirable. Such apples pack more closely and are less liable to bruising than apples that are oblate, conical or oblong. We made some tests with apples that were somewhat extreme in shape, and this fact was quite marked. You can pack the round or globular apples with less pressure and get them more closely packed in the ordinary package than you can the conical or the oblong or the oblate apples.

RICHNESS.

Just what is meant by richness or quality in fruit is not easily described. It consists substantially of a relatively large amount each, and a proper proportion of sugar and acid. That I think describes what we mean when we speak of richness in all fruits. Of course, we have flavor in addition to this, but what we mean when we say an apple is rich or has good quality, is generally, a large amount and the proper proportion of sugar and acid. You know how it is with lemonade for instance. If we have a small amount of acid and a small amount of sugar to a glass of water it is not a very desirable drink, but if we add more sugar and more acid, we get what we call a good beverage. We must remember that acid does not strictly neutralize sugar. That is, it never makes the sugar any less. It hides the sugar from our taste, but it does not, as the chemists say, neutralize it. Sugar is not an alkali. It is a neutral substance. Acid will always neutralize an alkali, but sugar being simply a neutral substance, is not neutralized; that is, we never have any less sugar by having more acid.

The average amount of sugar in our best apples is about 8¾ percent. Some varieties contain over 10 percent, and some have no more than 6. The average amount of free acid is about one and two-tenths percent. Should there be a relatively small amount of both acid and sugar, the result is an insipid apple. Should there be a proportionately large amount of acid to sugar, we have a sour apple. Too little acid for the sugar gives us a sweet apple. For the average taste apples like the Yellow Belleflower and Grimes' Golden have about the right proportion of sugar to acid.

FLAVOR.

Flavor is a quality separate from the taste given by the sugar and acid. It comes from volatile oils and ethers. It has the same source as the perfume or odors of flowers, fruits and foliage. Flavor and odor are very closely associated. Our organs of taste and smell are so intimately related that it is difficult, oftentimes well nigh impossible, to separate the impressions we receive through these senses.

I presume most of you have seen or heard of tests that have been made to show this. I am told that men who are very good judges of tobacco and know the quality of different brands of cigars, if their nose is stopped and they are blindfolded, can not tell whether a cigar is lighted or not. They can not tell without the use of the sense of smell; and I know myself that it is very difficult to detect cinnamon, we will say, from ordinary dry bark that has no flavor whatever. I have also tested peppermint and sage and a few other aromatic herbs in this way, and it is almost impossible to tell what you are eating if you have the nose closed and the eyes blindfolded. It simply shows that these organs are very closely associated; or the impressions that we receive though these senses are much the same.

A crisp, tender-fleshed apple is always desirable, yet this tenderness should not be confused with sponginess or softness. The flesh of an apple should be like good butter, firm, fine grained, and melting.

The skin of the apple usually forms a part of the waste and should be smooth and thin. It must, however, be sufficiently tough to prevent breaking or bruising in ordinary handling. A somewhat tough, smooth, bright, shining skin is always desirable in that it can the better resist the atacks of insects and fungi.

The core should be small, and the seeds few or none in a perfect apple. Besides being small, the core should be regular in shape, and well closed. A large and open-cored apple is undesirable from every point of view. Since we do not depend on the seed of an apple for the reproduction of the variety, these may be dispensed with. At all events they should be small in size and few in number.

We do not know exactly upon what the cooking quality of an apple depends. It appears to be associated with two things, an acid juiciness, and an abundance of pectose or jelly. Some apples cook fairly well in one way, and not so well in another. Certain varieties of sweet apples that make a very insipid sauce when stewed, are quite palatable when well baked. Although we can not state confidently upon what the cooking quality of an apple depends, we know it is one of the essentials of a perfect apple.

The quality of long-keeping is one of the greatest virtues of the apple, and perhaps this more than anything else makes it the world-renowned fruit of the temperate zones.

Apples vary in a wide degree in regard to this requisite. The keeping quality of an apple does not depend altogether upon its firmness, although, as a rule, the firmer and more solid the apple, the better it keeps. Long-keeping seems to be an inherent quality which varies in different varieties, and in the same variety, depending upon latitude, soil, climate and other conditions. For a commercial variety the importance of evenness of maturity can scarcely be overestimated, especially with winter apples. For home use a longer season in ripening may be desirable.

It is a prominent defect of some varieties that they fall too early or too easily from the tree. This is one of the weak points of the King and other varieties. Our so-called autumnal equinox occurs before the main crop of apples is ready for harvest, and its fierce gales and sweeping storms are apt to make bad work with much of our finest fruit. Some varieties that are firmly adherent in a healthy condition, are oftentimes so weakened by insects or fungi, or perhaps both, that they fall before their time. Such apples are worm-falls rather than wind-falls.

When we have produced an apple that shall possess in the highest degree all the qualities I have briefly enumerated, we shall not fall far short of our present ideal of perfection in the apple. But when the real shall have reached the ideal here portrayed, other qualities or a still higher degree of perfection will be demanded. The standard of perfection in the apple, as in all products of human skill and labor, is constantly advancing, and each step in advance points to yet higher and better things with our power of achievement.

How many really good varieties of apples are there in the United States? In 1892 there were 833 different named varieties of apples offered for sale by nurserymen. This, however, is only a small part of the total number of varieties in existence.

Ever since the organization of the American Pomological Society in 1850, it has been the duty of the standing committee of that Society to examine the lists of fruit now under cultivation and report the names of such as they deemed worthy, and also of such as should be further recommended.

In 1852 the first Journal Report was presented and 32 varieties of apples were listed.

The list was divided into three groups: First, those worthy of general cultivation; second, those adapted for particular localities; third, for varieties which promise well. The following are the varieties of the first group: Summer Pearmain, Baldwin, Bullock's Pippin, Danver's Winter Sweet, Early Harvest, Early Strawberry, Fall Pippin, Fameuse or Snow, Gravenstein, Hubbardston's Nonesuch, Sweet Bough, Lady Apple, Porter, Red Astrachan, R. I. Greening, Roxbury Russet, Summer Rose, Swaar, Vandevere, Seek-no-further, Wine Apple and Winesap.

For particular localities the following five varieties were named: Canada Red, Esopus, Spitzenburg, Newton Pippin, Northern Spy, and Yellow Belleflower.

The third group or those which promised well were: Autumn Bough, Hawley, Melon, Mother, Northern Spy, Smokehouse (six in all). As an evidence of the care with which this list was made up, it should be stated that after the lapse of forty years, all but two of these varieties are still listed as among the best and all but one are propagated by the nurserymen of today.

It is rather interesting to notice that as the years pass, this list of apples first increased and then decreased. In 1891 the committee named 339 varieties as being worthy of cultivation in the United States.

A Member: You say decreased?

Professor Lazenby: Yes, decreased. Last year, 1899, there were only 300. Quite a number of varieties have been stricken off, and, of course, some new ones have been added. There is another thing that is of some interest, that is the varieties that originated in foreign countries have increased proportionately. In 1891, out of the 339 varieties that were recommended, 22 originated in foreign countries. In other words, all but 22 originated in this country. Now, in 1899, of the 300 that are recommended, 49 of them are of foreign origin. Of these, 22 are from Russia, 7 from France, 7 from England, 3 from Germany, 1 from Holland, 2 are simply marked as Europe, the country not being known, and 6 from Canada, making 48.

Of the remainder it is also a matter of some little interest, I think, to know the states, from what part of our own country, we have the largest number of varieties. Thirty-one are marked American; that is, it is not known in just what part of the country they originated. New York heads the list of the states with 25; Massachusetts with 20; Pennsylvania, 19; North Carolina, 19; New Jersey, 14; Georgia, 12; Wisconsin, 10; Virginia, 10; Connecticut, 9; Vermont, 8, and Ohio, 8. I wonder how many of us can name the eight that originated here in Ohio. I can not do it. I know five or six of them, I think. The Rome Beauty, the Stark, the Ohio Nonpariel, Fink Ohio Pippin, and Western Beauty originated in this state.

Mr. L. B. Perce: The Weaver Sweet originated in Ohio.

Mr. Sweet: And Grimes' Golden.

Professor Lazenby: No, that is not an Ohio apple; it comes from Virginia. To continue: Missouri, 7; Tennessee, 7; Illinois, 5; Arkansas, 4; Maine, 3; Texas, 3; Rhode Island, 3; Delaware, 3; Kentucky, 2. One of those from Kentucky we have heard a good deal about this afternoon—the Ben Davis; Alabama, 2; South Carolina, 2; Maryland, 2; Michigan, 1. It is surprising to me that from as good a horticultural state as Michigan we should find that only one, out of these 300 of presumably our best apples, our standard varieties, originated in that state; that was the Shaiwassee; West Virginia gives us 1; Kansas, 1; Mississippi, 1; New Hampshire, 1. Of unknown origin, there were 5.

I have a few notes, Mr. President, regarding the number of varieties that were exhibited at our State Fair, if I am not occupying too much time.

President Cushman: You may have a little more time.

Professor Lazenby: These notes illustrate two things, I think. One is that our varieties of apples are changing slowly in the state, and another is, I am sorry to say, that the number who exhibit apples at our State Fair, the number of separate exhibitors, seem to be decreasing. To illustrate: In 1895, a good apple year in Ohio, and that probably had something to do with the number of exhibitors, the number of those who exhibited plate apples for premiums are as follows: (Summer and fall apples). Of Maiden Blush, there were 33; Fall Pippin, 31; Early Strawberry, 21; Alexander, 21; Benoni, 18.

Now, for the present year, the number of exhibitors of Maiden Blush was 15, and the Fall Pippin, instead of being 31, was 12; the Alexander, 9, and the Benoni, 6. Quite a falling off, although in many parts of the state it was thought that this was a pretty good year for apples.

Take some of the winter varieties: In 1895 there were 36 separate exhibitors of Baldwins, exhibiting plates for premium; this year there were 16; 37 exhibitors of the Rambo, 15 this year; 27 of the Rome Beauty; this year 14; 31 of Smith's Cider; this year, 15; 36 of Ben Davis; this year, 14; 32 of Grimes' Golden; this year, 14; 33 of Belleflower; this year, 12; 30 of Northern Spy, and this year, 12; 25 of King; this year, 11; 39 Rhode Island Greening; this year, 11; 26 of Roxbury Russett, this year, 10; 29 of the Fallwater; this year, 11.

I speak of this because I believe, while we must take into account that 1895 was an unusual year for apples in Ohio, there is now less interest taken in exhibiting apples at our State Fair, and I am sorry to see that the number of exhibitors is decreasing.
there were but 3 entries of 25 varieties.

In 1895 there were 21 exhibitors who competed for the best 6 varieties. This year there were only 7 entries for the best 6 varieties; 7 for the best 6 for family use, and 8 for the best 6 for market. In 1895 there were 15 competitors with lists of 25 varieties each. This year there were but three entries of 25 varieties.

The President: We have listened with very great interest to the talk on the apple by Professor Lazenby, and it is very fitting after the discussion we have had this afternoon. Is there anything further upon the subject?

Mr. Sweet: I would like to ask if there are any varieties that we raise that you think it would pay to make two pickings of—not pick them all the first picking, but pick them over again?

Mr. Cox: We always make two pickings of the Rome Beauty. They don't all ripen at once. Sometimes we get the best apples the second picking.

Dr. W. I. Chamberlain: The same is true of the Northern Spy. It certainly requires two pickings, and the Red Astrachan requires about four or five pickings.

Secretary Farnsworth: My experience with the Spy has been that the upper half or two-thirds of the tree are ripe before those near the ground. This year we left the lower ones nearly a month after the others had been picked, and they developed a great deal. They are very good in quality, and I find they are keeping much better.

Mr. Shirer: I would like to ask Professor Lazenby whether there is any relation between the size of the apple and the number of seeds?

Professor Lazenby: Yes. Some varieties have more seeds than others. As a rule, the larger the apple, the less the amount of the seed, relatively.

Mr. Shirer: I mean this, for the same variety: One apple that has 20, and one apple that has 10, and one that has 5; which of the three now, is likely to be the larger apple?

Professor Lazenby: What we would call a very large apple is apt to have fewer seeds than a smaller apple of the same variety. In other words, you get a far larger proportion of seeds to the weight of the apple in the small apples, than you do in the large apples.

Mr. Shirer: No, no; you haven't got my question yet. I mean this: If an apple has only a few seeds, you said that the less seed the apple had the better. Didn't you say that in your paper?

Professor Lazenby: Yes sir.

Mr. Shirer: In number, I supposed you meant?

Professor Lazenby: In number, for the seed is waste.

Mr. Shirer: Now, I want to know whether the apple that has less seed in number will be larger than if that apple had twice the number of seeds—of the same variety?

Professor Lazenby: Well, that was what I was trying to explain. As a rule, the large apple has proportionately less seeds than the small apple.

Mr. L. B. Pierce: How do you know it though, botanically? What is the reason for that? Do they grow larger because there are fewer seeds in them?

Professor Lazenby: Yes, that is one reason for good size, but it would not be the only reason, probably.

Dr. Chamberlain: Some varieties run uniformly few seeds, in proportion to size, and some many seeds.

Mr. Sweet: I came to the conclusion that in my orchard it pays to pick over the Rome Beauties, the Hubbardston, the Wagners and the Grimes' Golden twice, providing they hung pretty full; also the Northern Spy.

Professor A. D. Selby: I want to remark that Professor Lazenby's comparison as to the exhibition of apples in 1895 and this year is hardly fair. The year 1895 was the year above all others in our memory when apple-scab was not destructive in everybody's orchard; and the rest of it, in the matter of exhibitors simply follows from that proposition. And if everybody's apples were fair without any effort to prepare them to be fair by spraying, the number of exhibitors would be larger; and if the apples were not fair as has been true, without spraying and extra efforts, the number of those who would think it worth while to make exhibits would be proportionately reduced.

Dr. Chamberlain: I think that is an important statement, but it seems to me that there are two others: One is that this year there were very few apples except in a small strip of Ohio. I advertised two thousand bushels in Southern, Western and Northwestern Ohio, and in four days my two thousand bushels of picked apples were all sold. Another reason was that there was but a small area of Ohio that had any apples to show this year. Another reason is that this year we had on the State Board of Agriculture absolutely not one horticulturist to call them out, and if this Society at this meeting does not concentrate and put a member of this Society, or a good horticulturalist, on that Board of Agriculture, it seems to me it will be neglecting its duty. (Great applause.)

Mr. Shirer: Just one more question. I thought Professor Selby would help me out. It is well established that with grapes, the less number of seeds the larger is the pulp. That has been demonstrated. Now, for the reason I asked this question, the same law holds true in the apples. That has been a well-established fact. That information came from Washington, from headquarters, from the Agricultural Department, and I presume it ought to be correct; anything in the bulletins they issue from there should be. Some very able articles came from there on that point.

Mr. Buechly: I was going to ask the Professor whether or not the Western Beauty, which he says orginated in Ohio, is the same as the Summer Rambo, and if so, whether or not it didn't originate in Pennsylvania.

Mr. Pierce: Yes, it is the same.

Professor Lazenby: I think it originated here in Ohio.

Mr. Buechly: Professor Van Deman stated that it originated in Pennsylvania.

Professor Lazenby: My authority, if I recollect correctly, is the report of the committee of the Pomological Society.

The President: As we have quite a full program for this evening, perhaps we had better not spend any more time upon this very interesting subject. There are several reports to come in at this time. The first one is that of the Librarian. Professor Green, are you ready with your report?

Professor Green: Yes, but I haven't my report with me, but I may say we have had no accessions to the library, except in our exchanges with the different states. We have had the exchanges and have a large surplus of reports that I brought with me to distribute. Last year I forgot to bring them, so I have two year's reports of the Missouri, Michigan, Illinois and Indiana societies, and in the morning I will open them up.

The President: The next will be the report of the Centennial Commitee.

The Secretary: It will be rather short.

REPORT OF THE CENTENNIAL COMMITTEE.

Those of you who were present at our last annual meeting at Newark will remember that Mr. D. F. Ryan, the director general of the proposed Exposition to be held in 1902 in commemoration of the 100th anniversay or our state, appeared before us with an eloquent description of the coming event, and asked our cooperation in the same.

An appointment was made for the following day at Columbus, where our committee met Mr. Ryan and Mr. Binkly, of Sidney, the chairman of the Committee on Horticulture.

At this meeting Mr. Ryan and Mr. Binkly requested us to prepare outlines and plans for the building and exhibit in detail.

Mr. Cushman went at once to Toledo to consult Mr. Moore, the superintendent of parks of that city, and enlist his cooperation.

Mr. M. entered into our work very enthusiastically and gave us material aid.

At the meeting of the State Commission, at Toledo, the fo'lowing week, Mr. Harrison, Mr. Cushman and myself were present, and laid out plans before the meeting.

They were well received, and had the Exposition materialized, Horticulture and our society would have received proper recognition therein.

W. W. FARNSWORTH,
Chairman of Committee.

Mr. Pierce: We understand there is to be no Exposition.

The Secretary: There is to be no Exposition. That is the present understanding. I might say in addition to the report that we are very much gratified at the feeling of the commission toward our Society, and we had every reason to believe that our work would have been very pleasant and satisfactory with them.

Thereupon, on motion, the report of the committee was placed on file.

The President: The next is the report of the committee on San Jose Scale legislation.

Mr. Harrison: Mr. President, and Members of the State Horicultural Society: Your committee on San Jose Scale legislation beg leave to submit the following report:

REPORT OF COMMITTEE.

Mr. President and Members of the Ohio State Horticultural Society:

GENTLEMEN:—Your committee on San Jose scale legislation beg leave to report that it held a preliminary meeting at Newark one year ago during the session of this society at that place, to formulate a San Jose scale bill, to be presented to the legislature, but the time was too limited to agree on the details of the bill. Later your committee corresponded in relation to it, hoping to come to an understanding as to its provisions, but finding that was too slow, an appointment was made to meet in Columbus on January 11th, to, if possible, complete the bill and to consult with members of the legislature as to the best form to give the bill to insure its passage. The bill had been drafted with the idea of placing its execution under the control of a commission created for that special purpose and to bear the title of the Ohio San Jose Scale Commission, which commission was to be made up of the President of this Society, the President of the Board of Control of the Ohio Agricultral Experiment Station, and the Secretary of the State Board of Agriculture, but being advised by members of the legislature that this was a bad feature of the bill, as an attempt to create a special commission would greatly endanger its defeat, your committee finally agreed to place its execution solely in the hands of the Board of Control of the Ohio Agricultural Experiment Station. This and other modifications were made in the bill from time to time to make it more acceptable to those whose aid was desired in the passage of the measure. A part of your committee found it necessary to meet in Wooster, also to consult the President of the Board of Control at his home, and later to appear before the Finance Committee of the House to insure the passage of the bill with a liberal appropriation. Your committee feel that the Society has reason to congratulate itself on the accomplishment of its object, even though the law as spread upon the statute book of the state is not what all of its members might desire.

J. J. HARRISON,
W. N. SCARFF,
W. W. FARNSWORTH,
E. M. WOODARD,
W. H. OWEN,
Committee.

The President: Gentlemen, you have heard the report of the committee, what is your pleasure.

Thereupon, on motion, the report of the committee was unanimously adopted and placed on file.

The President: Gentlemen, the next report in order is that on our exhibit at the Paris Exposition.

The Secretary: Mr. Chairman, I will state that a short time before the State Fair meeting of our Society I received a letter from Professor William Taylor, urging us to make an exhibit at the Paris Exposition. This I laid before the Society at that meeting, when they requested me to try to collect and forward an exhibit. Three barrels were sent, one by Mr. L. B. Pierce, one by Mr. E. G. Cox, and one by myself.

REPORT OF COMMITTEE ON PARIS EXPOSITION.

A short time before the State Fair meeting of our Society I received a letter from Prof. Wm. Taylor, urging us to make an exhibit at the Exposition.

This I laid before the society at said meeting, when they requested me to forward an exhibit.

Three barrels were sent, one by Mr. L. B. Pierce, one by E. G. Cox, and one by myself.

I did not feel very sanguine of securing any prizes, as my experience as an exhibitor at the State Fair has been that it required a good deal of "hustling" to make a good exhibit and capture the prices, and our fruit was not fully matured nor colored.

I was agreeably surprised, however, by receiving from Col. Brackett, who had charge of the exhibit at Paris, a letter stating that the exhibit of this society had been awarded a silver medal.

I was still more surprised to receive a second letter from him after the next examination of fruit stating that another silver medal had been awarded us.

Should our society decide to make an exhibit at Buffalo, I hope more time and money will be expended in the effort to make a creditable exhibit.

W. W. FARNSWORTH.

Professor Lazenby: I would ask the Secretary if the medal that he speaks of has been received, or simply notice of the award. Are we sure of getting the silver medal, or is it simply a certificate showing that it has been awarded.

The Secretary: Colonel Brackett wrote that it would be a silver medal.

Professor Lazenby: I have heard from other sources that there is considerable of a fee to pay in order to get medals, but that the medals were not quite so bounteously distributed unless the cash was forthcoming.

The Secretary: Kind of a confidence game? We haven't got to that stage yet. It may come a little later.

And thereupon, on motion, the report of the committee was placed on file.

The President: We have now reached the point in our program when we will hear from Professor Selby in his report on Vegetable Pathology and Spraying Appliances. The Professor informs me that it will take a few minutes to arrange his views preliminary to his address, and in the meantime we will have a little music and intermission.

Here the Society was entertained with instrumental music by the ladies.

The President: Gentlemen, inasmuch as Professor Selby is not yet ready we will call to order and see if we cannot do a little business. Do you want to occupy any time with any part of this program? I am informed that a gentleman has sent a membership fee here for the purpose of getting at question number three here under "Things we want to know," and I hardly feel that we ought to let quite so much time go to waste. I think we had beter take up some of these questions: Question number three has been called for: "Have arsenate of lead, arsenate of soda or arsenate of lime proven successful as insecticides?"

The Secretary: I wrote the various members of the Society asking them to answer these questions. I think probably Professor Webster had question number three.

Professor Webster (reading): "Have arsenate of lead, arsenate of soda or arsenate of lime proven successful as insecticides?" In regard to arsenate of lead, I cannot say, so far as our own experiments have gone, except as against canker worms, and there it is thoroughly effective. I had a good chance to try it, and I don't think there is the least doubt in the world but that trees can be protected, or at least 95 percent of them (the worms) can be destroyed after they have gone to work upon the trees. One thing that I am hoping more from arsenate of lead in the orchard than of others is this, it does seem that by spraying the apple trees at the time we use the ordinary Paris Green mixture, that we may be able to protect the apples from a second brood of the codling moth. Now, I understand Mr. Chamberlain has tried that this year. We didn't, but expect to another year. As I will make clearer in my paper, if we can protect the apples from the second brood of codling moths, we will come very near solving the problem, and it does seem as though using arsenate of lead, which adheres more closely and will probably stay in the calyx long enough to destroy the second brood of larvae, is a long stride toward protecting the apple from the codling moth.

We have not tried the arsenate of lead in a satisfactory way except with the codling moth.

Now, as to the arsenate of soda. Mr. Green has been using that for years and he can tell you more about it in one minute than I can in half an hour.

As to arsenate of lime—have you used that, Mr. Green?

Professor Green: I have not used the arsenate of lime. I have used the arsenate of soda.

Professor Webster: I do not know of a single instance where that has been used. The arsenate of lead, disparene, they are the same thing under two different names, I think from what we have been able to do with it, they are going to prove to be most effective insecticides, from the fact that they will adhere so tenaciously to the leaves. You can see it on the leaves three months after it has been applied, and I feel very much encouraged over it as an insecticide that will take the place of Paris Green.

Mr. Freeman: In comparison, Professor Webster, what is the cost?

Professor Webster: The cost is more, but we have to make only one application. Still, it will cost a little more to use arsenate of lead than it does Paris Green.

Mr. Freeman: Not if you make two or three applications.

Professor Webster: If you count the cost of applying it, it will be a little more expensive.

Mr. Miller: When do you apply it?

Professor Webster: You apply it at the same time that you do Paris Green, and there is no danger of burning the foliage.

The Secretary: Do you think one spraying with disparene immediately after blooming time would be sufficient for the codling moth?

Professor Webster: It would have to be pretty carefully done. Still I question whether there would be a necessity of making a second application if done carefully.

Mr. Shirer: What is the time from the first brood to the second brood, the time intervening between the first and second broods of codling moths?

Professor Webster: Now, you must remember that Ohio covers a good deal of latitude. What I have been finding out in the northern part of Ohio might not apply to every section of the state.

Dr. Chamberlain: He didn't ask for the date, but the time between the two broods?

Professor Webster: I think you will find the first brood has finished its work about the first of August, and you will begin to notice the second brood the latter part of August or the first of September.

Professor Green: I used arsenate of lead several years ago. I found it a characteristic to stick to the foliage. With a good many of these other mixtures you have difficulties, especially if you use the poison alone. I didn't see any great difference between it and Paris Green in effect.

Dr. Chamberlain: My experience with arsenate of soda is that it is very soluble, and will wash off in the first big rain. My experience with disparene, that is, arsenate of lead, is that it is a kind of paint and stays a good while, but I would spray at least three times with either one of them, and the winter apples I would spray clear down until the middle of August in order to kill the whole of the codling moth.

At the close of the above discussion Professor A. D. Selby delivered the following address:

REPORT OF THE COMMITTEE ON VEGETABLE PATHOLOGY.

(Illustrated.)

By A. D. Selby, Ohio Agricultural Experiment Station, Wooster.

INTRODUCTION.

Your committee bearing the name just announced is concerned especially with the Diseases of Plants, and its report should properly include such matters as bear upon these maladies.

Plant diseases belong in the domain of botany, and their study is a comparatively recent phase of that science; but that the public will at once recognize the relation between plant diseases and botanical science may scarcely be assumed.

Botany is a comprehensive name, indicating science of plants in the broadest possible sense, just as agriculture includes what relates to field culture of every sort, and horticulture that which relates to the more intensive culture of the garden, even though that be expanded to large areas. Botany is inseparably connected with horticulture, just as horticulture is the indispensable handmaid of botany; horticulturists and botanists alike are imbued with that love of plants, that appreciation of their phenomena which creates in the devotee a reciprocal affection for plant surroundings of every sort. Nor is this all; the entire community, whether resident in city or country, recognizes in a more or less definable manner, that plants are the basal members of the life of the globe, without which the existence of animals, and even man, would be impossible. Botany, therefore, as a branch of scientific investigation, may rightly, we believe, lay claim to certain considerable importance in relation to the agricultural community and to all classes. I trust you will pardon me for reciting at this point the development of that unique American institution of our National Government, the United States Department of Agriculture, as illustrating the changed latitude of the public. Fifteen years ago there were in the United States Department of Agriculture a Division of Chemistry, a Division of Pomology, a Division of Entomology, a Division of Botany, a Division of Forestry, a Division of Animal Industry, all of which rightfully remain. But what I wish to remark is that while the division devoted to Animal Industry has its offshoot, the Dairy Division, and while the Division of Chemistry has the separate Division of Soils, the Division of Botany of old, is represented by the Divisions of Botany, of Vegetable Physiology and Pathology, and of Agrostology, besides Sections of Seed and Plant Introduction and Pure Seed Investigations, under the parent Division of Botany.

I trust you will excuse this apparent emphasis of botanical research; it is introduced to make plain to all that botany as a branch of science covers a great deal besides the identification of a few scores, or hundreds, of plants or weeds, and the description of certain leaf forms, indispensable as this knowledge is. The science of plants has a broader claim upon horticulturists than the study even of plant diseases and their remedies, important as most are willing to grant these have proved in the last ten years.

(a) Further, I may add that botany as a subject of research will not have exhausted its material when the human race has run its course upon the earth.

(a) A review of Ohio work on plant diseases, prepared for the Paris Exposition of 1900, was issued as Bulletin No. 111 of our Station. In an abridged and modified form the same subject was covered by an address at the State Farmers' Institute in January 1900, and published in the Institute Report. Repetition of matter contained in these papers would here be unnecessary.

It may, however, be stated that doubtless other more immediate pressing necessities have excluded from our programs, heretofore, the presentation of the fundamentals of vegetable physiology, the life and work of plants under normal conditions, certainly one of the most important subjects that could be considered by an association of plant breeders and plant culturists.

SOME NORMAL PHENOMENA IN PLANTS.

In order the better to appreciate the bearing of parasitism and of parasitic fungi upon the health of plants, let us consider briefly how the work of plants is accomplished. The plants with which we deal have their roots in the earth and their leaves unfolded at a greater or less elevation in the air. In the growing season, the roots, by means of the fine root hairs, take up water from the soil, this water carrying with it into the plant whatver of dissolved (chiefly) mineral plant food it may have acquired by percolating through the soil. It is in this way that we feed plants through the soil by applying soluble manures, unless as is commonly and properly the case, we strive to increase the water-holding capacity of the soil so that the plant may never lack for the water supply in which this plant food is to be dissolved. Certainly the water question may never be neglected. With the beginning of the growing season, when the temperature of the air has risen sufficiently, the leaves will emerge from their protecting buds on the trees, fed largely by food stored in adjacent parts. The grasses and vegetables are active in like manner either from the old roots or the newly planted seeds. Soon the earth is clothed (as if by a magician's wand) with the fascinating, permeating leaf green, the old enchanting story rehearsed in endless succession to our forest dwelling ancestors. To quote another (Professor MacDougal): "Our vague and inherited emotional interest in the annual revivification of the vegetable world becomes vividly intense and direct, however, when it is learned that the universal blush of green is due to the most important coloring substance in the world—chlorophyll. It is literally true that the existence of every living thing is ultimately dependent upon the activity of plant-green." This plant-green is distributed in the cells of the leaves and other green parts, chiefly in those cells of the leaves more directly exposed to light. In but a little while the leaves are not being fed, but feeding the plant to a remarkable degree. To quote another sentence from the same author, "The adult leaf manufactures about ninety-seven percent of the food of the plant from water and (the) carbon dioxid of the air." The water is obtained very largely from the soil by the roots, and distributed in the cell sap. The carbon dioxid of the air is absorbed by this coming into touch with the cells, through the openings in the covering of these green parts, known as breathing pores or stomates, by which the oxygen, as well as the other gaseous products released by leaf action, may in turn escape. In the leaf, through the activity of the leaf-green, this absorbed carbon dioxid and the other constituents of the cell sap are acted upon by the sunlight to produce in the presence of the cell protoplasm the various carbohydrates for the nutrition of the plants, or for transposition and storage in those parts we seek to secure. The roots of our parsnips, turnips, beets, etc., the tubers of our potatoes, as well as all the fruits we prize, these are the result of the labors of the leaf by its chlorophyll, aided, of course, by the roots of the plant and the rays of the sun. Plants subsisting in a normal or healthy manner show the well known green color and other aspects which we have learned to take as a matter of course. But let either the root action, the water conducting parts between root and leaves, or the leaves themselves, be in any way impeded in their normal activities and the plant becomes diseased. Of course this may occur in a variety of ways and through a number of agencies, but you will readily perceive how the leaves are open to the attacks and prone to suffer by the growth of parasitic fungi upon them.

HOW PARASITIC FUNGI ATTACK PLANTS.

We may not close our own respiratory passages and yet continue to breathe; no more may the leaves close the stomata and carry on the processes analogous alike to both respiration and digestion (photosynthesis) assigned to these organs in the plant economy. Holding fast this truth, we can realize the full opportunity for parasitic fungi to gain entrance into the leaves through these breathing pores.

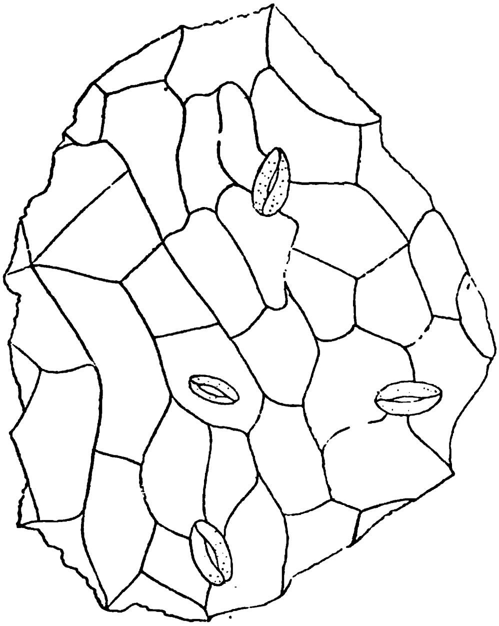


FIGURE 1. Epidermis from upper leaf surface of cucumber leaf showing breathing pores or stomates with chlorophyll grain, in the Ward cells but in no other cells. (Magnified about 500 diameters.)

The germ tube of a growing spore may readily find its way into the internal leaf issues through one of these openings; once within, the parasitic growth proceeds at a rapid rate, and the functional activities of the leaf are in consequence impaired. There is a robber sycophant consuming the substances required for normal use in the portions of the plant, as well as destroying the plant laboratory in the leaf. This may be likened to nothing else so well as to the devastating march of an invading army, which destroys even more than it consumes. Some fungi, too, as in the case of the powdery mildew, are able to send sucking organs, or haustoria, through the external leaf coverings. In all cases these haustoria penetrate the plant cells within.

What happens to the leaf may be in part apprehended; it is likewise liable to suffer from the impaired activities of the roots, or the conducting tissues between roots and leaves. Let the soil be too wet, the roots fail to act properly and the leaves tell the rest of the story by change of color. Let parasitic fungi attack the root, or let the root hairs be affected, as is believed to be the condition in the disease called "little peach," in Michigan, and the results are equally disastrous.

The injuries by frozen trunks need not be again recited. But the water conducting tissues from the root to leaves are of analogous importance to the arterial passages from the heart to the parts of our own bodies, ignorant as we yet are of the true explanation of the ascent of sap in plants. In trees these conducting passages are abundant and less frequently clogged; in herbaceous plants, on the other hand, these passages frequently become closed, or obstructed. In the wilt disease of cucumbers and watermelons, microbes, or spores of fungi produced with the host, may fill these passages very completely; the result is as instantaneous and as injurious as if the stem were severed at the surface of the earth by hoe or edge tool—the plant wilts for lack of water normally supplied by the roots.

Many of the smut fungi attack plants through the very young seedlings. In such cases the smut spores are liable to be sown with the seed grain, as with oats, wheat, barley, etc., or to survive in the soil as onion smut. Only young parts are attacked in any instance, although these young parts may be late shoots, as in the case of corn smut.

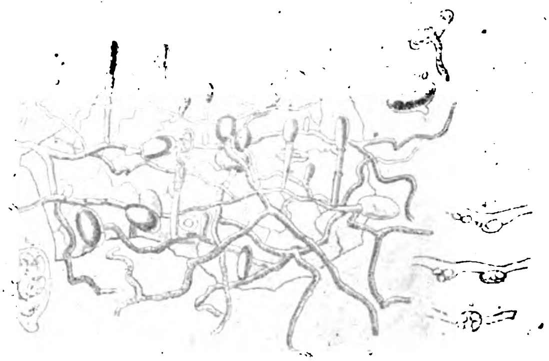


FIGURE 2. Showing threads of mildew on plant leaf The threads growing from spores and ready to enter the stomates. At 4, 5 and 6 haustoria on threads of a mildew fungus. At 7b a spore sac with spores and 10 growing spores.

This much by way of clearing the way for greater brevity in the treatment of the special diseases.

THE SEASON OF 1900.

The season of 1900 was one of retarded spring, general drouth until late in May, usually abundant rains thereafter, but with local drouth areas. The season was favorable to general crops, early potatoes and sugar beets (as to sugar content) excepted.

AVERAGE TEMPERATURE AND RAINFALL IN 1900.

	Temperature, Degrees Fahr.		Rainfall, Inches.	
	Mean, 1900.	Normal Mean	Average, 1900.	Nor. Average.
January	31.1	28.0	2.37	2.95
February	26.0	28.4	3.53	2.88
March	32.9	38.4	2.35	3.42
April	50.1	50.6	1.89	2.90
May	62.9	61.0	2.40	3.47
June	69.8	70.3	2.09	3.41
July	74.1	74.5	4.62	3.89
August	76.3	71.3	3.68	2.91
September	69.3	65.6	1.76	2.64
October	60.5	52.5	1.89	2.11

April as very cold till 16th.

May rains were heavy from 27th to 31st.

Sugar beets for the present season have shown an abnormally low sugar content and purity compared with last season, when we had a dry August, as against a rainy one the present season. Sunshine is essential to beet sugar manufacture in the plant. While August seems an important period for this, I believe a great deal of encouragement to sugar beet growers may be drawn from certain facts of the season. Late rains also made the leaf-spot disease of the beet very bad.

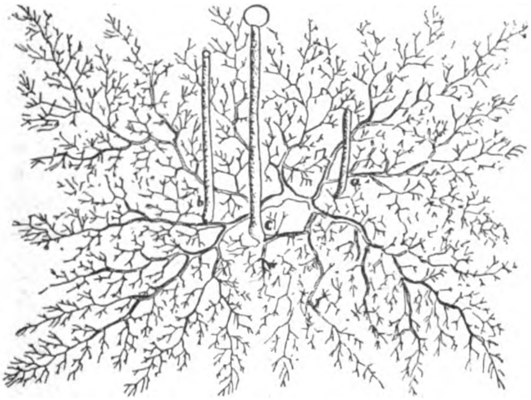


FIGURE 8. The common bread-mold fungus. From the small enlarged portion near the center arise these branches, which branch again repeatedly send up spore-bearing branches at a, b, c, the latter with spore case at summit.

In discussing prevalent diseases these may be grouped under the Diseases of Orchard Fruits, of Small Fruits, of Garden and Truck Crops, of Field Crops and Forcing House Troubles.

ORCHARD FRUITS.

Diseases of Apple, Peach and Pear.

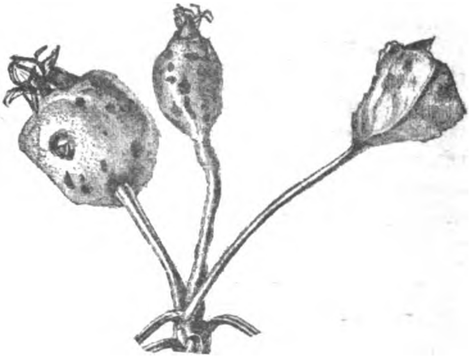


FIGURE 4. Young apples attacked by scab fungus.

The midseason cultivated apple scab to a certain extent, but rather less disastrously than last year. The northern regions had a good apple yield by rotation, with scant crops to the southward. Won't it pay to prevent this exhaustion one year and thus have fruit more regularly? True this is not easy, though certainly desirable from a physiological standpoint. Apple scab (Fusicladium dentriticum) is a typical leaf and fruit parasite, generally prevaiilng as stated above.

Crown gall of apple trees is likely to remain with us—for how many is it destructive?

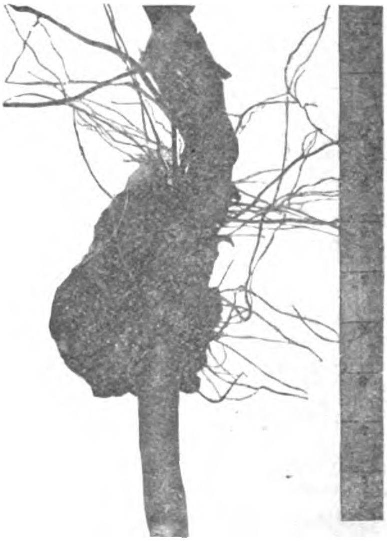


FIGURE 5. Crown Gall on apple tree from nursery.

Apple canker and trunk blight are apparently on the increase. The canker, as reported last year, is especially destructive upon the Baldwin, Duchess, Grimes' Golden and some other varieties, while the Crown Disease of the King apple is very injurious on the once popular King of Tompkins county. I wish I were able to report more progress in checking this form of disease. If the right diagnosis is that of fungi, set forth last year, fungicidal treatment should check it greatly.

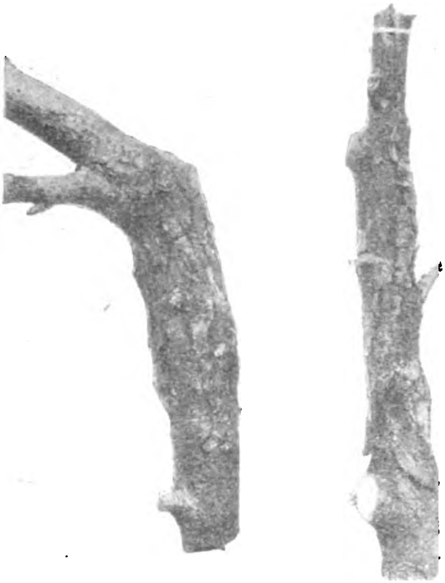


FIGURE 6. Apple Canker on branches of apple tree of bearing age.

The twig blight of apple referred to the microbe of pear blight (Bacillus amylovorus Burr.) inoculated in the blossoms through the visits of insects, was generally prevalent. While blighted parts of trees are permitted to remain unburned, this disease will continue. The chief diseases of the apple are those long known.

LEAF CURL AND CROWN GALL OF THE PEACH.

Under the peculiar conditions of last spring, low temperatures and scanty rainfall in April, it was demonstrated that low temperature alone furnishes an essential weather condition for leaf curl (Exoascus deformans B) on susceptible varieties like the Elberta. On this variety at Gypsum, May 18, my notes record on unsprayed trees 85 percent of curl; on sprayed, 15 percent of curl. Bordeaux mixture proved again its efficiency as a preventive of curl, when applied early. A small trial of formalin, or formaldehyde, as Mr. Wm. Miller's failed to yield and decisive results for peach leaf curl. A like unfavorable result was obtained with it at Wooster.

Crown gall of the peach continues to be found on nursery trees. This contagious disease calls for destruction of affected trees of nursery age. It is often much less destructive on older trees. The galls at the crown of small trees, like those from the nursery, often interrupt the water flow from root to stem, and are more serious at that age for this reason.

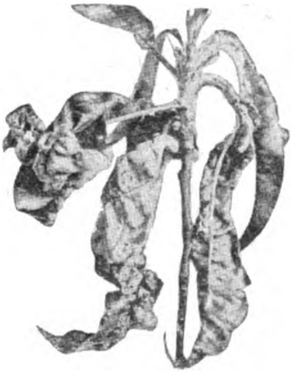


FIGURE 7. Leaves of peach tree attacked by Curl. (After Atkinson.)

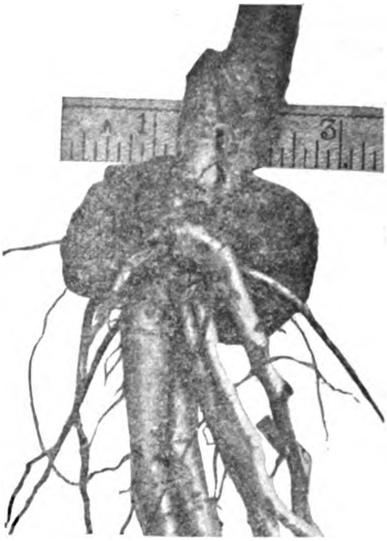


FIGURE 8. Crown Gall on nursery peach tree.

YELLOWS.

I am unable to report upon yellows over much of the state, by personal field study, the past season. My information is not such as to make a bright picture possible. Excepting portions of Ashtabula county, Ottawa county, and the Maumee Valley, in part at least, in which yellows is not prevalent, or but occasional, the peach orchards of the state are scourged with yellows. I may add Washington county as one in which it is found, to my knowledge. It is increasingly prevalent in Wayne county also. In the portions of Athens county visited the present summer, the spread of yellows has been very rapid. Like information comes from other districts. Destruction of affected trees is still the only remedy.

THE GALVESTON STORM IN OHIO.

About September 12th, high winds prevailed over Ohio, working great injury by dislodging fruit, overturning, or breaking trees, and in certain unexpected ways. In Ottawa county heavy losses were experienced, apparently more largely by a sirocco effect not heretofore recorded, to my knowledge. Those who have read of the sirocco wind which sometimes blows from the Desert of Sahara over southern Italy and Sicily will have a clear idea of the drying out experienced about Gypsum, and doubtless at many other points. Moisture had previously been deficient, and the windward sides of the trees suffered decidedly worse, while the fruit from the entire peach tree, due to ripen soon after this data, was described as inferior in size. To my own mind the high winds greatly accentuated a condition of dryness already trying to the heavily loaded peach orchards.

The blackening of peaches on one side is to be referred to a fungus, that of scab.

The loss of apple crop by these high winds was very great, and the conditions of a year ago have been repeated more or less in the keeping quality of picked apples. Our long, open falls subject the ripened fruit to much greater stress than our normal weather conditions. I am convinced that this will explain the loss of both seasons in this line.

PEAR BLIGHT AND LEAF-SPOT.

The prevalence of the microbe of fire blight of the pear (Bacillus amylovorus Burr) should soon impress us with the ultimate risk of carelessness or neglect in this line. It were wiser to fight fire with fire, each year, than to organize, or endeavor to organize, a crusade against this trouble when all the pear orchards have been threatened, as seems well within the possibilities. Susceptible varieties should be abandoned, while in our efforts to check pear blight we dare not overlook the significance of the twig blight of the apple and crabapple, which are due to the same microbe.

Pear leaf-spot (Septoria piricola) is well nigh universal in Ohio, as attested by distant observations. The injury from it is not large, although when we consider the function of the leaf as already pointed out, we must grant this parasite power for considerable harm.

DISEASES OF PLUM AND CHERRY.

With these two fruits the rot fungus (Monilla fructigena Pers.) and the shot-hole or leaf fungus (Cylindiosporium Padi Karst.) were conspicuous. The rot question may point a moral that is worth remembering. Plum rot is a most destructive disease that can not be controlled either by reading at the trees one of Captain General Blanco's proclamations, or General Buller's Tulega river dispatches —reading the spray calendar at a tree will make little difference. I may even admit that the plums will rot on sprayed trees under the right weather conditions, if this is all a grower is prepared or willing to do. Spraying with Bordeaux mixture is necessary, a prerequisite to saving many European plums from rot in rainy, steamy weather, but it is not a complete specific. Old mummy, and often newly rotted plums, must be gathered in addition. This statement is made because of the frequent letters from amateur plum growers who are in trouble from rot Some of them fail to catch the significance of the foregoing facts. In one instance, at least, when the full statements were made to a correspondent, he announced (doubtless according to previous personal belief) "the Experiment Station says spraying is not a remedy for rot." I repeat that spraying with Bordeaux mixture for plum rot is a prerequisite to success in saving the crop, but needs to be supplemented by other things, and generally by the exercise of good judgment.

For shot-hole fungus, Bordeaux mixture is a specific and successful remedy.

DISEASES OF SMALL FRUITS.

On raspberries and blackberries, what was stated a year ago as to crown gall, should be repeated. The proportion of plantations of these fruits diseased in this manner is certainly frightful. Healthy, new plantations can not be started from diseased ones by selecting apparently healthy plants. A healthy plantation is the only sort from which plants should be offered for sale.

In this connection, or in closer analogy, perhaps, under discussion of crown gall of the peach, we have new light during the year from the West. Tuomey has found in Arizona (Bulletin 33) that the crown gall of the almond is the result of the attacks of a parasitic slime mold, and that the injuries are in a manner analogous to those due to the well known slime mold producing club root of cabbage. Should we find an analogous truth in the crown gall of raspberry, peach, etc., much that has heretofore been doubtful would be made more certain, but the danger from the disease would be rendered all the greater thereby. A parasitic slime mold for crown gall is in line with the observed contagious character of the disease. Let us not deceive ourselves about these serious troubles, which, as I have before shown, are communicated from the raspberry to the peach.

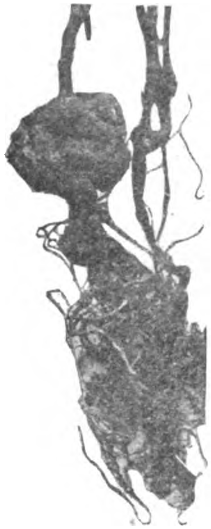


FIGURE 9. Crown Gall on red raspberry plant.

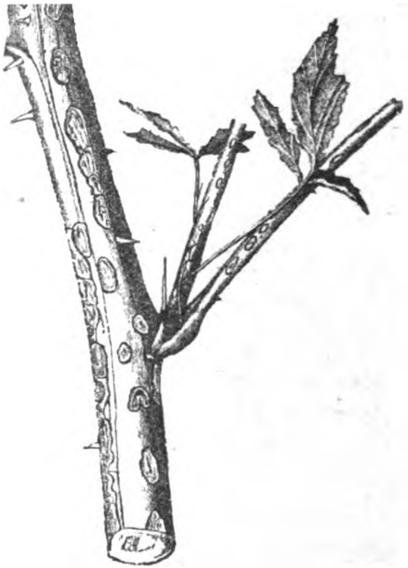


FIGURE 10. Anthracnose on stem of raspberry.

ROT OF GRAPES.

Low prices have discouraged grape growers, but the rot now staggers them. This applies to practically all grape districts aside from that of Euclid and certain outliers of that district. Certainly in Lorain, western Cuyahoga, Lake and Ashtabula counties the rot of grapes the past season has inflicted very general and severe losses. Our experiments at Geneva, Ashtabula county, are less decisive than might be desired. The black rot is satisfactorily controlled by the use of Bordeaux mixture, but the later rot, which I have called white rot, is difficult to prevent under weather conditions that favor it, such as hot, rainy days. Varieties differ greatly in suspectibility, Catawba, Niagara and Worden being very badly damaged, while Moore's Early, Delaware, Salem and Concord are more resistant, somewhat in the order of naming.

Soil conditions surrounding the grapes are a matter of great importance. Can hard silt soils, which, in the past, have been considered better adapted to grapes than to other crops, produce vines of greater resistance to rot than gravelly or otherwise richer lands? How much this resistance may be attributable to scantier growth, or other possible causes, I will not undertake to assert. Islands, so to speak, of the soil character described, were fruitful amid surrounding wastes of rot. Doubtless several factors contribute to the result. Upon gravelly soil, where the experiments were conducted, the spraying saved about 50 to 60 percent of the possible crop for the season, the unsprayed row yielding only a few wine grapes, while the sprayed ones gave each about one hundred four pound baskets of good grapes to the row. The omission of the one Bordeaux treatment just previous to the blossoming of the grapes, on the new shoots of the season, upon one row, gave a yield of ten baskets, against 100 baskets each on adjacent rows on either side. All three rows, understand, were sprayed alike throughout the season, save for the omission described. The black rot must here be charged with this great difference, and it is equally clear that this must be met by spraying. For black rot spraying is a success; for white rot spraying is, as yet, a decided success only on favorable soils and with resistant varieties. Soils in the grape region, of a gravelly or loamy character, now planted in vineyards, seem likely to be withdrawn from grape culture and devoted to other purposes. Further experiments in spraying for white rot are needed before a final judgment, but modifications indicated by the work of 1900, are the inefficiency of winter spraying, more frequent later applications and possible use of modified mixtures for the late treatments. Thoroughness in spraying is essential. As a setting to these statements it should be remembered that unsprayed vineyards in the areas studied, gave no marketable fruit. The grape industry in Ohio, so far as large areas are concerned, is now threatened with virtual extinction.

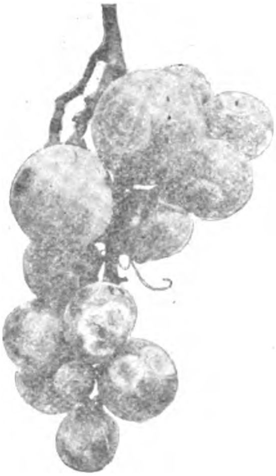


FIGURE 11. Cluster of grapes attacked by Anthracnose or Birds-eye Rot.

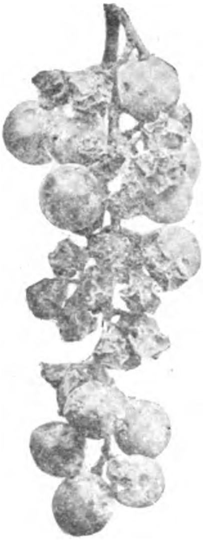


FIGURE 12. Cluster of grapes attacked by White Rot.

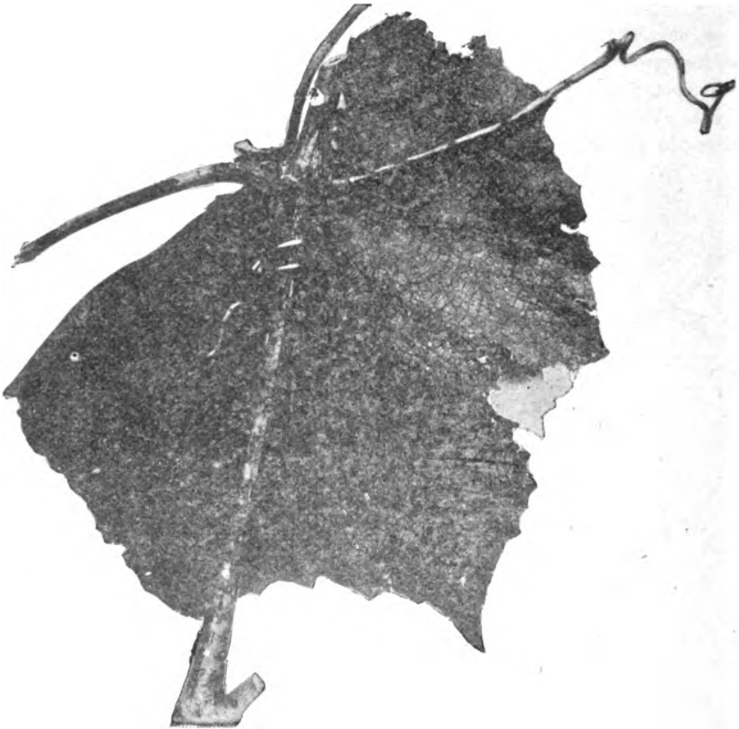


FIGURE 13. Stem and leaf of grape attacked by Black Rot, causing dead, brown areas.

DISEASES OF GARDEN AND TRUCK CROPS.

ON CABBAGE AND ONIONS.

The truck crops have especially suffered during the season of 1900. Cabbage black rot (Pseudomonas campestris) (Pammel) and club root (Plasmodiophora Brassicae Wor.) are increasing rather steadily. The same applies to onion smut (Urocystis Cepulae Frost) in the affected districts. The onion smut, as most may know, lives over indefinitely in the infected soils. Experiments conducted by the Botanical Department of the Experiment Station, during the season of 1900, in cooperation with Mr. Fred Schreiner, Jr., of Chillicothe, indicate that formalin or formaldehyde solution in water, of the same or slightly increased strength as that now used for oat smut, may prove a remedy of value; the same is true to stone lime applied to the soil just before seeding the onions. The formalin solution is sprinkled upon the seed in the soil furrows; the seed is immediately covered. This treatment apparently increases the germination of the seeds as well as checks the smut. Lime may be applied at the rate of 75 to 150 bushels per acre. just before planting.

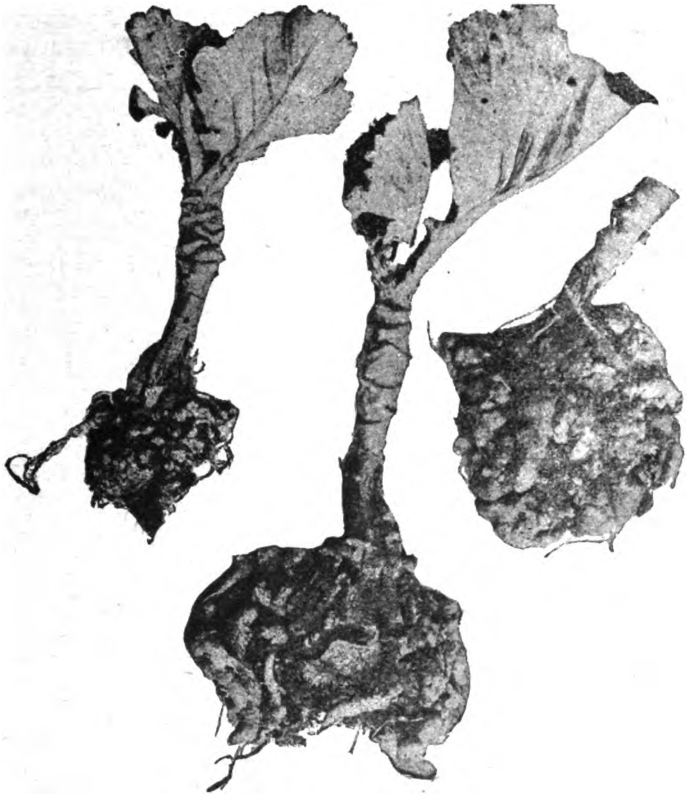


FIGURE 14. Cabbages attacked by Club-root (After Halstead.)

DOWNY MILDEW OF CUCUMBERS AND MELONS.

While we still have the leaf blight and the anthracnose on these plants, as in earlies years, the dominant trouble is downy mildew (Plasmopara Cubensis (B. & C.) Humph.) which is very sudden and destructive in its effects. I had the good

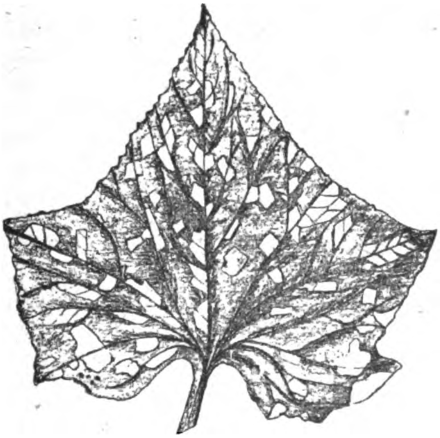


FIGURE 15. Cucumber leaf attacked by Downy Mildew. The light areas in cut are yellow in leaf.

fortune this present year to observe it on melons and cucumbers at Marietta, Ohio, August 3; August 11-13 it had reached Wayne county; and August 24, as reported by Mr. Roudebush, it was in Lake county. The disease extended into Michigan, as attested by specimens sent me from Ann Arbor by Mr. Duvel, my former assistant. Melons, cucumbers and other tender cucurbits, were destroyed by it, but the trouble is usually called "the blight." Bordeaux mixture is a remedy for this trouble, if promptly applied, and at repeated intervals after July 25 to August 1. I believe the same applies to muskmelons as well as cucumbers, but the experience of a pickle grower near Applecreek will be of possible help. Upon the announcement made in our Wayne county papers, August 5, that the mildew would soon appear, he subsequently stated to me upon bringing me destroyed cucumber leaves, that he came to the Experiment Station and got the bulletin and spray calender, "but," he added, with a sly twinkle, "this did not seem to help them a bit." (No spraying was done.) Early planted cucumbers may escape this trouble, but muskmelons can not be planted ahead of it in most places.

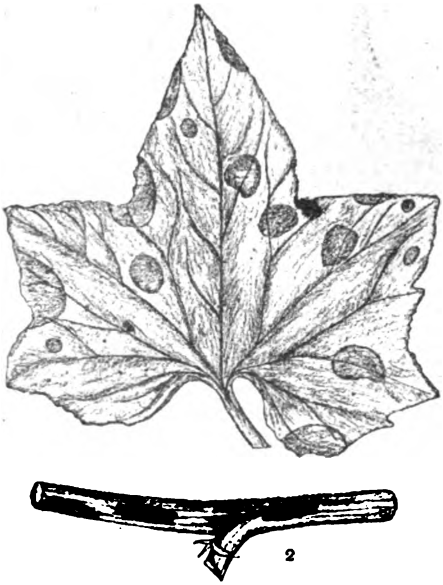


FIGURE 16. Cucumber leaf and stem attacked by Anthracnose causing dead spots.

TOMATO LEAF-SPOT OR LEAF BLIGHT—ASPARAGUS RUST.

This fungus (Septoria Lycopersici Speg.) was very destructive on field tomatoes the present season. The losses about Cincinnati were very large. Last season its ravages were limited, but in 1898 they were very damaging. Rainy summers appear to favor it. We found Bordeaux mixture to be a remedy in our Station experiments.

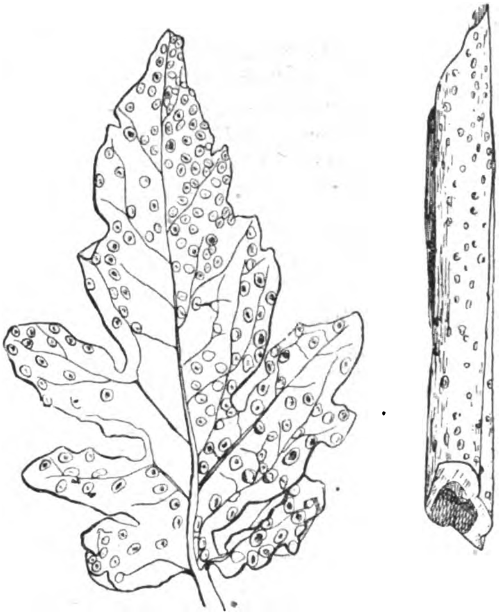


FIGURE 17. Leaf and Stem of Tomato, all attacked by Leaf-spot.

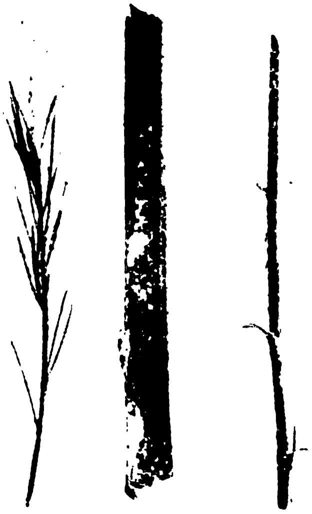


FIGURE 18. Rust on asparagus.

Asparagus rust has become distributed over about the whole state from Ashtabula county to Miami county. Burn rusted plants and spray the new growth.

GREENHOUSE TROUBLES.

For the greenhouse culturist there are many prevalent diseases. Carnations, roses, cucumbers, lettuce and nearly all hothouse plants become diseased. For the

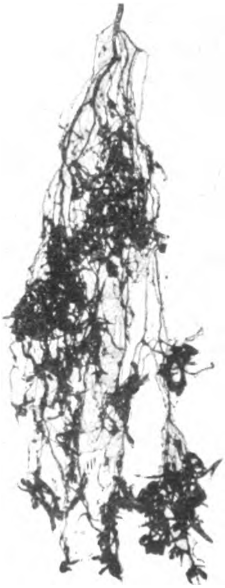


FIGURE 19. Roots of rose attacked by Nematodes producing enlargement or galls.

rose grower the nematode worms are about the worst enemy—destroy by steaming the earth before planting. For carnations we find stem rot, a fungous disease worse than any other the present year. Be careful about the cutting stock for this and rust. Cucumber wilt invades the greenhouse as an almost unconquerable trouble. For tomato point rot we hold the water supply responsible. Upon the large flowered sorts of Clematis propagated in the greenhouse to a certain extent, there is an inexplicable blighting and dying down that I have been unable to explain or find a remedy for. Mr. Hanauer, of Dayton, kindly supplied material for study.

DISEASES OF FIELD CROPS—NEW POTATO DISEASES.

In addition to the old potato diseases, attention has recently been called to two new ones. These are the Fusarium dry rot, often from the stem end, and a disfiguring of the surface of the potatoes possibly causing them to crack open, since many affected ones are cracked badly, and referable, according to Stewart and Duggar, of New York, to a Rhizoctonia fungus. Possibly we have had both of these troubles longer than I have assumed, since the fusarium rot has long been known in Europe, and the second one, the Rhizoctonia trouble might not be distinguished from light cases of scab. Care in seed selection is all that can now be recommended, in the way of remedies. Possibly scab treatment will reduce the Rhizoctonia.

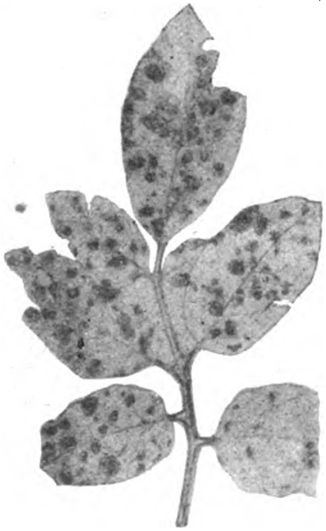


FIGURE 20. Leaf of Potato attacked by Early Blight. (After Jones.)

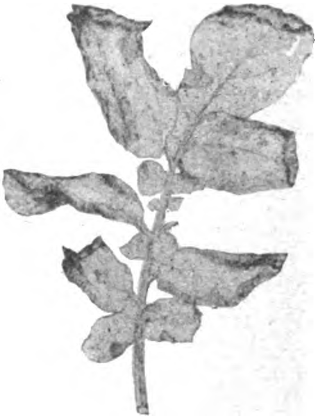


FIGURE 21. Potato leaf with Tip-burn—dead tips not caused by fungi.

A PRACTICABLE REMEDY FOR OAT SMUT.

I would emphasize the practicability of the formalin (or formaldehyde) treatment for oat smut. One ounce of this is sufficient for three gallons of water, which will then treat three bushels of grain by sprinkling in a heap. After thoroughly wetting, the piles are simply allowed to remain about three hours, then scattered to dry. One pound of formalin will be enough for 50 gallons of water and will treat 50 bushels of seed oats. The formalin costs only about 50 cents per pound. The Student Union has carried on tests of the formalin the past season with gratifying success, by all reports. This simple and inexpensive remedy should render oat smut a thing of the past.

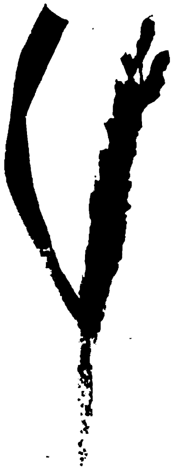


FIGURE 22. Head of Oats attacked by loose smut.

DISEASES OF THE SUGAR BEET.

We now have a modern beet sugar factory at Fremont, Sandusky county, slicing 350 to 400 tons of beets per day and turning out granulated white sugar. Nearly 3,000 acres of beets were cultivated for it the past season so that attention has been called to sugar beet diseases as never before. I will not detain you to say much about them. As you have in mind the beet leaf is the sugar laboratory of the plant. Leaf diseases are, therefore, very serious. The beet leaf-spot fungus (Cercospora Beticola Sacc.) has been somewhat troublesome the past season, and will doubtless be more injurious if beets are planted in the same soil a second succeeding season. There is, too, a crown gall of sugar beets that is very disfiguring and scarcely in a position to be attributed to grafting operations. Bordeaux mixture is believed to be the remedy for leaf-spot while the crown gall trouble remains to be investigated.

I think we must expect that fungous troubles will multiply as the years go by so that we must prepare year by year for a stronger and stronger battle against them. In order to do this there is need of a radical improvement in spray appliances. So I have to add some slides and general statements concerning the facts I have brought out in regard to these.

CERTAIN NEEDS IN SPRAY APPLIANCES.

We, of course, need good hose, good nozzles, of which we have a satisfactory type in the vermorel pattern, single or double, and we require judgment to be exercised in the direction of the spray to the proper parts, but more than this we positively must have an improvement in spray devices for giving us pressure on the spray liquid. Labor is now too scarce to make it easy to get a man who will work all day at the handle of an ordinary spray pump. While this will be admitted at once by nearly all large orchardists, the solution of the problem is far from simple, and will doubtless vary more or less according to each man's conditions. I will offer some suggestions, partly my own and partly coming from others.

It appears that we have three classes of spray pump types that promise relief:

1. Power pumps with gasoline engines.
2. Traction pressure accumulation devices by means of pressure chamber.
3. Compressed air devices, by portable air compressor and tested tanks, after the manner of the loop plan recently published in the Rural New Yorker.

The first and third classes require a gasoline engine, which increases the first cost; the first needs a triplex power pump, and the third an air compressor. both costing about $60 to $75 each, in addition to the engine. The second class, or traction pressure device, is of more moderate cost, but of lower possible pressure, so that the cheapness may lose its advantage. In all cases, the nozzle must be directed to attain the desired results on any crop.

Most large growers have other uses for a portable gas engine, such as grinding or cutting feed, pumping water, sawing wood, etc., at the several seasons of the year. For these a gasoline engine would appear to be one of the most practicable methods of pressure, whether by power pump or air compressor will be determined by other conditions. For large growers the power pump offers rather less difficulty, as well as a slight advantage in first cost.

And, thereupon, the Society took a recess until 9 a. m. the following day.

MORNING SESSION—Thursday, December 6, 1900.

Pursuant to adjournment, the President called the Society to order at 9 o'clock, and announced that the first thing in order would be the question box. If any of you have any questions that you desire answered, now is the time to present them.

Dr. Chamberlain: I would like to ask Professor Green in regard to one part of his report. He says he does not know but what we shall have to accept the Ben Davis for its market qualities, as we do the Keiffer pear and the Concord grape and one or two other things. Well, now, the Concord grape is fit to eat, and I believe that people are universally fond of it. I want to know if he would really insult the Concord grape by classing it with the Keiffer pear and the Ben Davis apple?

Professor Green: I meant from a commercial standpoint alone, considering it for its market value and not thinking of anything else.

Mr. Woodard: I have another question, and that is, has the Campbell grape proven entirely satisfactory?

Professor Green: At first it did not make a good growth, but last year we got a pretty fair yield and a pretty nice cluster. It has a thick skin. The only objection I have to it is that it is not quite as good quality as the Concord and some others that I named. I do not like the quality of it. As a market grape, if it proves prolific enough, it will take the place of the Concord.

Mr. Woodard: That is the point, "if it proves prolific." Is it a grape that will improve with age?

A Member: Ours have.

Mr. Woodard: That is my experience.

The President: We have a number of questions in the box, and it would be well to take them up and dispose of them. The Secretary's cold has so interfered with his vocal organs that I will read the questions.

Question: Is there a remedy for the canker on orchard trees?

The President: That question is directed to Professor Selby.

Professor Selby: You are asked to prescribe for a man when you don't know just what is the matter with him. I am not clear as to just what this question involves.

Mr. Freeman: I was requested to put that question in that form. It refers to the canker we were talking about in the nursery. That has stricken an orchard and gotten into the roots of the trees. Is there a remedy to destroy it?

Professor Selby: I think, if I understand that question, that it is usually charged up to the woolly Aphis man, and I am not a woolly Aphis man.

The President: Will the woolly Aphis man have anything to say about it?

Professor Webster: That is the first time I have ever had the canker charged up to woolly Aphis, if that is really the cause of it. Now, is that the case?

Mr. Freeman: It is so stated.

Professor Webster: If that is what you mean, perhaps we have the thing in a little clearer light. Now, so far as facts are concerned, do you know of any serious damage outside of the nursery row?

Mr. Freeman: I present the question in behalf of a neighbor close to me.

Professor Webster: Does he think that it is injuring the roots of his orchard trees?

Mr. Freeman: Yes, sir.

Professor Webster: I do not believe that the woolly Aphis does any harm to orchard trees over the larger—even the entire portion of Ohio. Mr. McNary sent me two or three years ago the worst infested apple trees that he could find anywhere. I put them out on the Station grounds, and I cannot see but what they have been growing just as thriftily and nicely as they could. Now, that does affect trees in the nursery row, and I tell you I do not know how you are going to prevent it. These insects fly there from orchards or anywhere and establish themselves there, and you can not fence them out. There is no way to prevent it. I can shut up every nursery in Ohio or in every other state, if the Woolly Aphis is to be barred out. There is not a nursery north of the Ohio river, I believe, and probably south of it, where they cannot be found. Now, as to those trees, especially where the roots are knotted, the only thing we can do, if necessary, is to oblige the nurseryman to sign an agreement that he will not send those out when he ships his stock. Now, if we have to do it, we can dig up an entire nursery in order to inspect it and see whether those are in the roots or not; and that is the only way to settle the matter conclusively. I leave it to you whether or not that is practicable. The way that is avoided in Illinois, they demand of nurserymen an agreement that they will throw out all those trees when they ship their nursery stock. As to anything to apply, there is nothing that has been found that is thoroughly practical and effective that you can apply to the roots of the trees to destroy the Woolly Aphis.

Dr. Chamberlain: Well, in Illinois they have a penalty for doing it, or exact a bond from the nurseryman, but their promise is not worth anything.

Professor Webster: Well, his written promise is worth something if he is worth anything.

Mr. Albaugh: I would like to add a little testimony that I have in regard to this same Woolly Aphis, or these cankered trees, as they are sometimes called. About ten years ago one of those parasites called "traveling fruit men," came to our place and said that he had a contract with a man in Kentucky to plant out in partnership with him three thousand Ben Davis apple trees. He said that he wanted to buy the cheapest trees that he could, and I took him out and showed him a block of Ben Davis, those that were not so large and had been hindered in their growth by the Woolly Aphis. He said it didn't make any difference to him about the knots on the roots, that he had agreed to plant this orchard out in partnership with this man, and that he had some kind of a contract that he had got even with the man without the fruit. He got those trees. We let him have them at a very low rate. He planted them on a farm near where we have a large peach orchard in Kentucky, and just as Mr. Webster has said about their trees, they have grown and they looked fine. I have seen the orchard, now eight years old, with a full crop of apples, and there is not a finer orchard any place. That man came and bought those trees independent of us, paid for and took them away with him. It has been a serious question with me whether after all, outside of checking the growth of the tree in the nursery, it is carried to the orchard and in any way seriously affects the trees. I have had, in my experience in the nursery business, trees that were badly affected at two years old. I have left them there until three or four years old, when they were put out in the row and it disappeared, and the trees are just as finely rooted as we could find anywhere. The Professor says truly that if you had to eradicate the Woolly Aphis and its effects from the nursery north of the Ohio river, or south, I will say in the United States anywhere, there would be no nurseries left. In Virginia they have the Woolly Aphis as one of the noxious insects, one of the new noxious insects. Now, I am a lineal descendant of the man who built the first known vessel that sailed the waters, and I think I can say a pair of the Woolly Aphis went into the ark.

The President: The next question is: "Is there any difference in varieties of red raspberries in respect to root gall? Is one variety more resistant than another?"

W. N. Scarff: I do not believe there is any difference so far as variety is concerned. I think the location has a great deal to do with it, perhaps. We have noticed that red raspberries planted in black ground are more subject to it than any other place.

Mr. Pierce: Mr. President, that is directly opposite to my experience. On my wettest ground—I do not know that I have it too wet—is where I get my best fruit.

The Secretary: I asked that question to see if the experience of others corresponds with my own. My experience has been the same as that of Mr. Scarff's, that in the low ground we have the most root gall. I have one plantation of Louden in the high ground, and three-fourths to nine-tenths of the Louden are affected with the root gall, and the King are not affected. I have been testing them for six or eight years, and I have never seen the King affected in the least, and while the Louden is one of our very best varieties, it seems to be doomed.

Mr. H. H. Aultfather: I have never seen the root gall on my place yet, except on the Miller. I bought the plants of a party, and in two years they were infected with the root gall, but on the Cuthbert, not two rods away, I have never seen the root gall, right in the same soil.

Question: "Can plum trees from three to five inches at the trunk be transplanted successfully? If so, how?"

Mr. Albaugh: I have had no experience with the plum tree, but there are parties in Dayton who move large nursery trees. They load them onto special wagons built for the purpose. They will take a large Norway maple and dig a large hole for the tree four feet deep, right when the ground is frozen, back up to the hole, put in the tree and assure it to grow, and I suppose that it is the same with any large tree. Dig a circular hole three or four feet deep, put in your trees, cover them up, and they will grow without any trouble.

Question: "Is there any real difference between the Carmen potatoes, the Rural New Yorker and Sir Walter Raleigh?"

Dr. Chamberlain: I think there is a decided difference. The Carmen is a little longer and less round than the Rural New Yorker, and it is certainly a better potato. It is better quality. You will find a much larger proportion of them that are dry and reasonably mealy than of the Rural New Yorker.

Mr. Whitney: Which Carmen do you refer to?

Dr. Chamberlain: Carmen number three. Number three and Rural number two are the two that are alike. Now, most of the Rurals that are shipped into Cleveland are shipped as Carmen number one because the Carmen is a better potato.

The President: They will knock the Carmen out.

Dr. Chamberlain: No, the Carmen is gaining all the time. The Carmen will be the principal potato soon.

Mr. Aultfather: A good many potatoes are being shipped into our section this year. The Carmen is not giving as good satisfaction as the Rural.

The Secretary: We find the Carmen better in quality than the Rural. We think the Carmen number three better than the Rural, and Carmen number one still better, while the Sir Walter is an improvement in quality over the number three, and about equal in yield and appearance.

Question: "What is the best fertilizer for an eight-year-old weak-rooted apple orchard?" Answer by Green, Ohmer and others.

Professor Green: I do not feel like answering that question off hand, without knowing something more about the orchard. Of course, I would not think of using barnyard manure to any extent, and commercial fertilizers are pretty costly. I should plow under cow peas. If I used fertilizer would increase the phosphoric acid and the potash.

I don't like to answer that question more fully until I know more about it.

Mr. Brawley: This orchard has not been cultivated for five years; it is in clover and grass, on limestone soil, and the question is whether it can be fertilized with something and not plowed.

Professor Green: I should use the commercial fertilizers, bone meal and potash.

Question: "In planting Dahlia roots, can you cut them, or must they be planted whole?".

Mr. Harrison: You can cut them, provided you save a piece of the bud on every piece of the roots. Unless there is a piece of bud, you will get no plant.

Question: "Can Japan or American plums, five years old, be grafted or budded? If so, which?"

Professor Green: Grafted.

The President: Early in the spring.

Mr. Cox: I have about 20 trees of Abundance, Burbank and Willard. I kept some until they were five years old and then grafted. They made a good growth until about the middle of the summer and then the grafts all died. I would not advise anybody to bud any of the Japan plums to European varieties. They are not good stock to bud on. I would not advise anybody to plant any of the Japan plums in Southern Ohio, in Lawrence county especially, because they always bloom too early on account of the warm weather.

Mr. Sweet: I have had plum trees grafted at all ages, and never had any trouble in making them grow, if grafted early enough. They want to be grafted early. Apple trees, the same as cherries, want to be grafted early. I have had good success.

The President: We will now listen to the report of the Committee on Entomology, and the use of crude petroleum, by Professor F. M. Webster.

REPORT OF THE COMMITTEE ON ENTOMOLOGY.

BY F. M. WEBSTER.

A NEW ENEMY TO THE STRAWBERRY.

The past year has brought its full quota of surprises, changes and additions to the sum total of our knowledge of insects and their ways.

The most important matter of interest, to the strawberry grower especially, is the running down and fastening the guilt upon two of our heretofore friends, of serious destruction to ripening strawberries. The Ground, or Darkling, beetles have been supposed to be of very great benefit to the husbandman, owing to the fact that their food is largely of other, and frequently very destructive, insects, like cut worms, etc. But this year we have caught in the very act two of these, doing immense injury to the strawberry crop by eating the seeds from the berries about the time of ripening. The insects that are responsible for this injury are shown in the accompanying illustrations.

One of them is shown in Fig. 1, life size, both back and side view, and also two individuals at work upon the strawberry. Their works are shown, in this same illustration, by the uneaten hulls scattered about on the leaf directly under the berry which has been attacked and left almost entirely devoid of seeds. The other insect is Harpalus pennsylvanicus, and is shown in Fig. 1, Plate 1, in all of its stages of development: a—the beetle, which attacks the plant; b—the young, or larval stage: and c—the pupal stage. These insects do not, either one of them, appear to attack the strawberry simply for the fruit itself, as that is, as a rule, comparatively little eaten; but the surface thereof, especially in case of that nearly or quite ripe, is always badly torn and lacerated, giving it a raw, bleeding appearance when the fresh attack is observed. The insects work almost entirely between eight o'clock in the evening and six o'clock in the morning. At other times they are hidden away under clods, or in crevices in the ground, and may usually be found there the morning following their depredations upon the berries. In fact, if one will take the pains to examine such places in close proximity to eaten berries, he is almost sure to find from one to several hidden away under clods or flat stones, or by digging a little about holes in the ground. The larger beetle is known to science as Harpalus caliginosus; the smaller, as Harpalus pennsylvanicus. Both of these

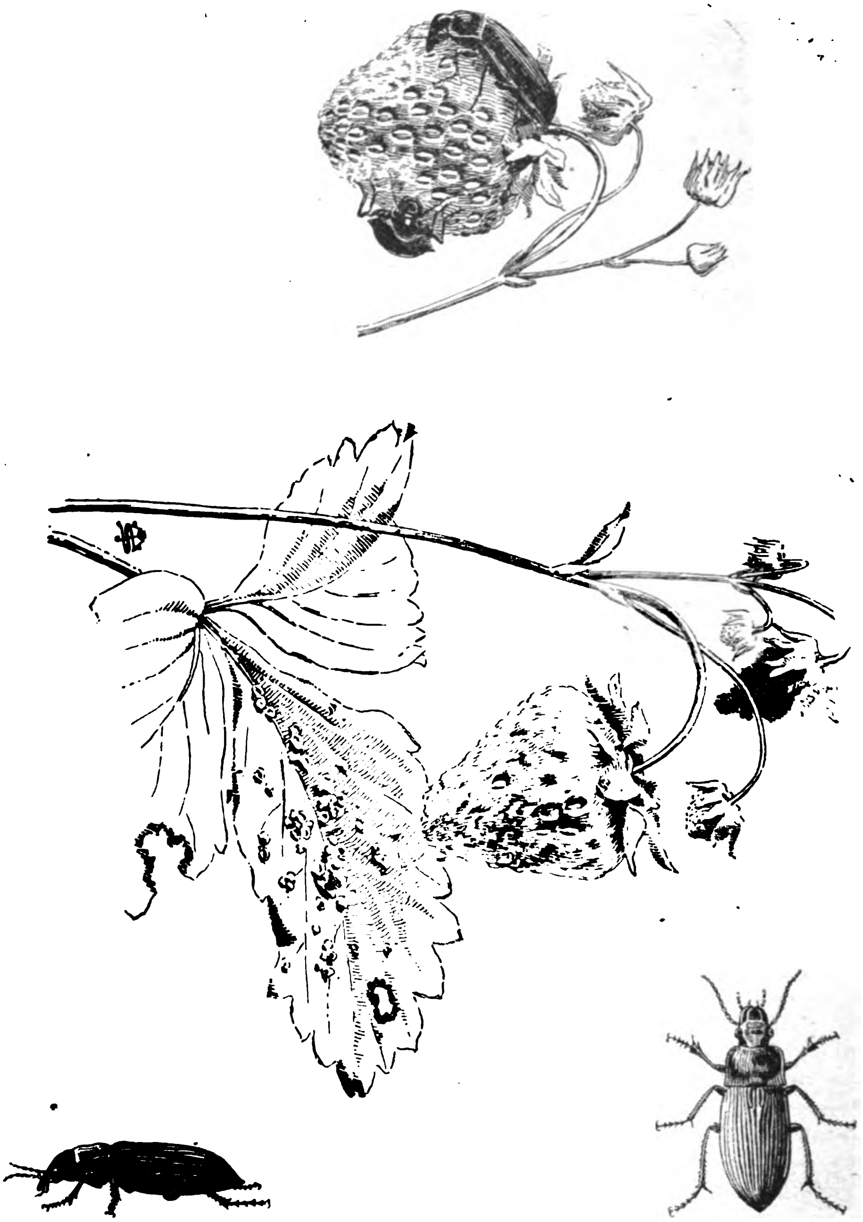


Fig. 1. Harpalus Caliginorus: side and back view; attacking Strawberry. Central Figure shows injured berries with Seed Hulls underneath. Original.

are known to work the same injury, but the larger one, here in Ohio, is probably the chief depredator.

As regarding remedies, it will probably be very difficult to use poisons, unless, perhaps, wheat bran, poisoned, be placed under boards in the evening, and it must be stated that this has never been tried, and we do not know what effect poisons will have upon the insects themselves. It seems to me that the most practical way of dealing with them is to hunt them out whenever the injured berries are observed. The most unfortunate feature of this is that both of these insects are, generally speaking, friends of the fruit-grower, and no doubt destroy myriads of destructive insects. They occupy somewhat the place in horticulture as does the robin.

SOME CODLIN MOTH EXPERIMENTS.

In Ohio, our attempts to protect the apple crop from attack by the codlin moth have given us varying results. Some years, spraying with the arsenites, like Paris green, London purple and arsenite of soda, have given excellent protection, and the apples have been very free of larvæ. Other years, though the spraying has been done with equal care and in proper season, the effect has been discouraging, to say the least. The causes for these varying results are not at all clear, and there is some ground, during some years, for the question of whether or not it pays the orchardist to go to the expense of two or three sprayings, and get so little in return for his labor and other necessary expenditures, which spraying necessitates. Frequently the apples will pass through the season up to late August without exhibiting indications of the work of the apple worm, but after that the fruit seems to be seriously attacked and much damage done. There are with us two periods of dropping of the wormy fruit. The first is in late July and the fore part of August, and the second setting in early September. Orchardists have declared that they could prevent the first very largely by spraying; but the second baffles them I have suspected for a long time that this was due to the attack of the second brood, and those who succeeded in protecting their fruit early in the season were very largely suffering from the results of moths developing in unsprayed orchards, and migrating during August to those that were carefully and properly sprayed, thus infesting these after it is possible to protect them by the usual measures.

In order to test the probable efficiency of spraying during the ordinary season for doing this, an experiment was tried in the orchard of Mr. William Miller, at Gypsum, Ottawa county, along the southern shore of Lake Erie. It was obviously impossible to get two trees exactly alike, and not easy to secure two greatly alike in close proximity to each other; but we selected two well in from the outer margins, and one of these we covered with netting, such as is used for covering baskets of peaches and grapes. The trees were sprayed for the last time on June 22d, and the covering applied the next day.

All fallen apples were removed from under both trees on August 29th, while there was a cessation in dropping of infested fruit, and, as we thought, all of the first brood were thus eliminated. On September 14th, soon after the terrible wind that swept over the lake region—the spent tropical hurricane that devastated Galveston, Texas—there were removed from under the covered tree 229 apples, 59 percent of these being sound, their weight 77 pounds. Under the uncovered tree there were 1,052 apples, only 10 percent of which were sound, and their weight was 214 pounds.

October 22d there were picked from the covered tree 107 pounds of fruit; 372 apples were sound and 8 wormy. Of the windfalls, there were 18, all wormy.

From the check tree there were picked 128 pounds of fruit: 253 apples being sound, and 41 wormy. Of the windfalls, 94 were sound and 104 wormy.

Recapitulating, the covered tree, after the fruit was removed from beneath on August 29th, carried 622 apples. Of these, 372 were gathered in a sound condition, and 26 were wormy. The uncovered tree, after fallen fruit was removed August 29th, carried 1,544 apples, of which 347 were sound when gathered, and 145 were wormy. The summary would read thus: Covered tree gave 507 sound and 120, 19.1 percent. wormy; the uncovered tree gave 452 sound and 1,092, 70.7 percent. wormy. This I think shows pretty clearly what the result would be if we could manage the second brood of moths, and also who is to blame for the disastrous effects of the second in well-sprayed orchards.

There are two other points worth mentioning. First, where a species is double-brooded, the second brood is likely to be the most migratory in habits. Second, it is the outer rows in a well-sprayed apple orchard that are the most affected late in the season. Taking it altogether, the trouble does not appear to be with the spraying, but with those who do not spray at all, and who furnish the migrating female codlin moths that give origin to the second generation of worms in a well-sprayed orchard.

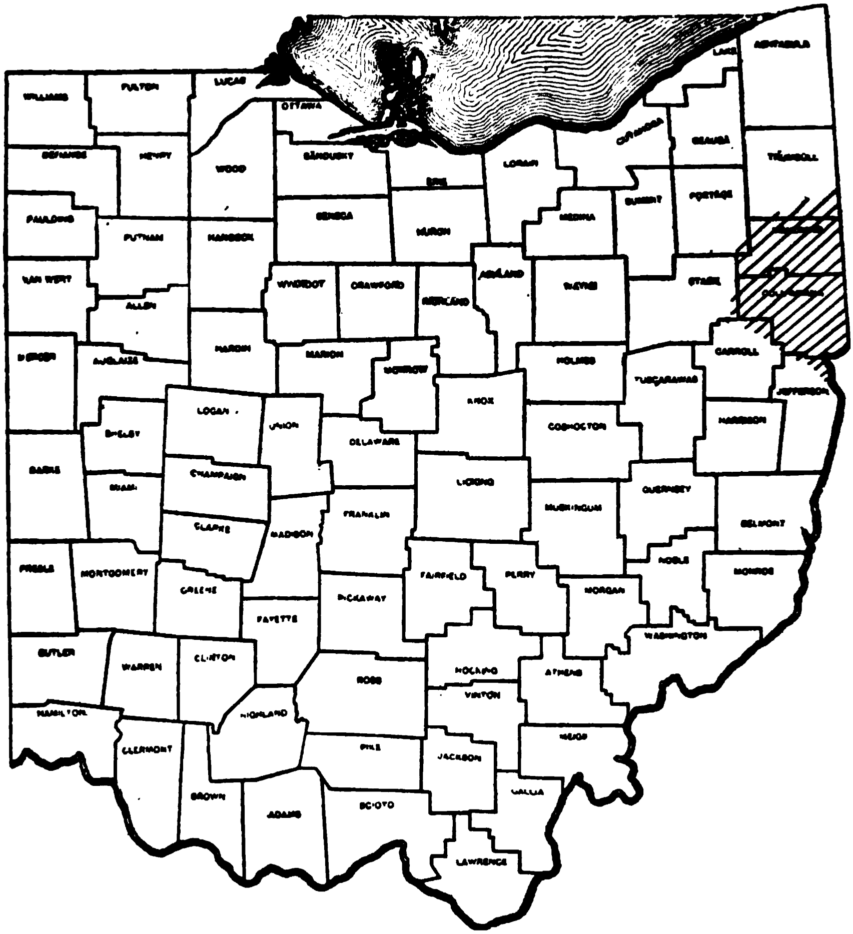


FIGURE 2.

THE 17-YEAR CICADDA.

The 17-year locust appeared this year chiefly in Columbiana and Mahoning counties, including also the borders of Jefferson, Carroll, Stark and Southern Portage and Trumbull counties (see map, Fig. 2). The area covered by this brood was limited, and much less than any of us supposed it would be, as every one expected that the brood would occur from Columbiana county to the lake. This was what might be termed a very compact brood; that is, where it did occur, it appeared in myriads. I would call attention to the fact that in 1902 another brood of this insect is due to appear over much of the western half of Ohio, west of a line drawn through from Catawba Island to Portsmouth, except perhaps in extreme Southern Ohio, about Cincinnati.

EXPERIMENTAL MATTERS.

A bit of international entomological work that has been done may not prove uninteresting. We have sent two consignments of lady beetles from Ohio to South Africa, with the hope of being able to colonize these in that country, and perhaps add to their beneficial insects. In return I hope to get from that country a species of lady beetle that preys upon plant lice, and is said to exert a beneficial influence in South Africa in holding many species of these aphides in check. These lady beetles, like all other insects, have their natural enemies; but if we can export the species from this country into South Africa, and get them colonized there, leaving their natural enemies behind, they will probably follow the same mode of procedure that injurious insects do when brought into this country without their natural enemies. The species that I hope to bring into Ohio from South Africa, and colonize in the southern portion of the State, is probably, at home, destroyed to some extent by its natural enemies. If we can colonize these in Ohio, and leave their enemies behind, we may hope much from the experiment.

In regard to the San Jose scale, the members of the Horticultural Society will remember that for several years I have been inclined to the opinion that Japan was the native home of this pest, and from which country we had received it. You will be interested in knowing that Mr. Kuwana, a Japanese student at Stanford University, California, spent the summer in his native country, and found the San Jose scale scattered over the whole empire, and in some places doing considerable damage. He finds very much to indicate that Japan is the native home of the San Jose scale. Without wishing to anticipate, I can say that if this should prove to be true, we may be able to follow out one of my pet ideas, that of introducing the natural enemies of the pest from Japan into the United States.

THE USE OF CRUDE PETROLEUM IN THE ORCHARD.

The varying and sometimes disastrous results obtained from the use of refined petroleum on growing trees as an insecticide, and especially against the San Jose scale, has led to the suspicion that the crude produce might be less variable and drastic in its effects. But so far as it has been used, it would appear that we have yet much to learn before we can, with safety, recommend the application of the crude product to the different varieties of fruit trees. That it is efficient in destroying the San Jose scale, if it is brought in contact with this insect, seems now quite probable. But the hundreds of dead trees that mark the areas where it has been indiscriminately used, point very clearly to the fact that great caution is necessary, and no one is as yet able to say just where safety ceases and danger begins. Then, too, when no permanent injury is apparent, as in the case of the seedling apples on the grounds of the Ohio Agricultural Experiment Station (see Plates 2 to 4), who can say that this unnatural retardation may not, after the first application, prove to be a menace to the life or general vigor of the tree It is well known that in nature these retardations sometimes occur; but nature seldom, if ever, covers the bark of a tree or shrub, and then only in part, with vegetable growths like lichens, and even these are known to be detrimental, a smooth, clean bark being always desirable.

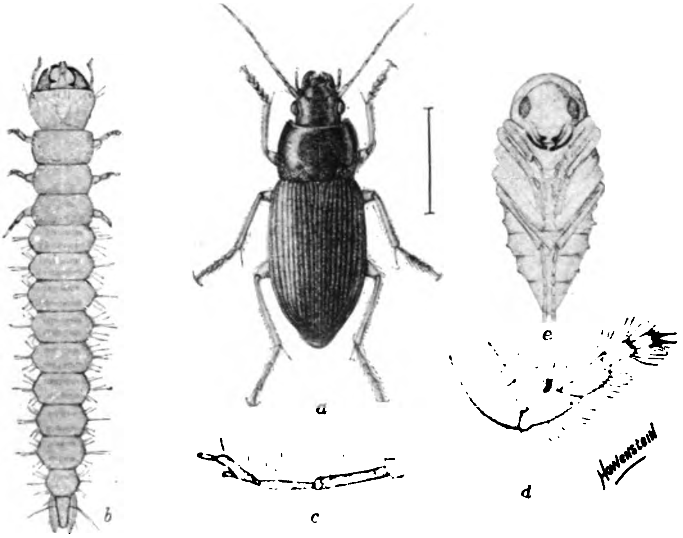
In the use of refined petroleum, one of the most perplexing phenomenon observed was the fact that equally careful applications, made by the same person with the same grade of oil, would give almost opposite results. Here recommendation of the refined product for general use has in many cases resulted disastrously, and brought no little disrepute to the entomological fraternity of this country. The most that can now be said for the refined product is that a 10 to 20 percent mixture with water constitutes a fairly successful summer wash, and destroys the young scale, thereby checking the increase and spread until applications of whale oil soap mixtures can be made.

In the use of the crude product I have seen some of the most astonishing results obtained, but, as with the refined, I have seen also the most disastrous effects. Perhaps the uncertainty of effects in using crude petroleum in the orchard may be best illustrated by giving the results obtained this year by Mr. N. A. Hadden, of Catawba Island. Mr. Hadden used crude petroleum on the strength of recommendations from New Jersey, including those published by Prof. John B. Smith, and contrary to the advice of some of his neighbors. As I knew nothing of the matter until some weeks after the latest applications, nothing could have been said or done by me to in any manner influence Mr. Hadden, who followed his own course, and, I may add, has offered me every facility for observing the final results.

About 50 peach trees of the Crawford's late variety were prayed from an oil well near Gypsum, Ottawa county, March 10, 1900, with 100 percent crude petroleum, distillation B. The spraying was carefully done, and none of the petroleum was allowed to run down the trunks of the trees. The effect on these trees is shown by the illustration, Fig. 2, Plate 1. Two other blocks of peach trees on which crude petroleum from same well was used were also totally destroyed. On the same day, March 10, 1900, six plum and one peach tree were sprayed with crude petroleum from the same well, and of same strength. Two unhealthy plum trees died; the other four were uninjured, as was also the peach, which not only made a vigorous growth, but bore several peaches. Several rows of Smock and Salway peaches were sprayed April 7th with 100 percent crude petroleum, and, though not showing serious injury on May 16th, in July 90 percent were dead, and the remainder fatally injured. Crawford's Late, sprayed March 8th with 10 percent crude petroleum, and another block sprayed with a 40 percent mixture, were not seemingly injured, but bore no fruit. Eight apple trees and several peach trees, sprayed March 8th with 10 percent crude petroleum, were uninjured.

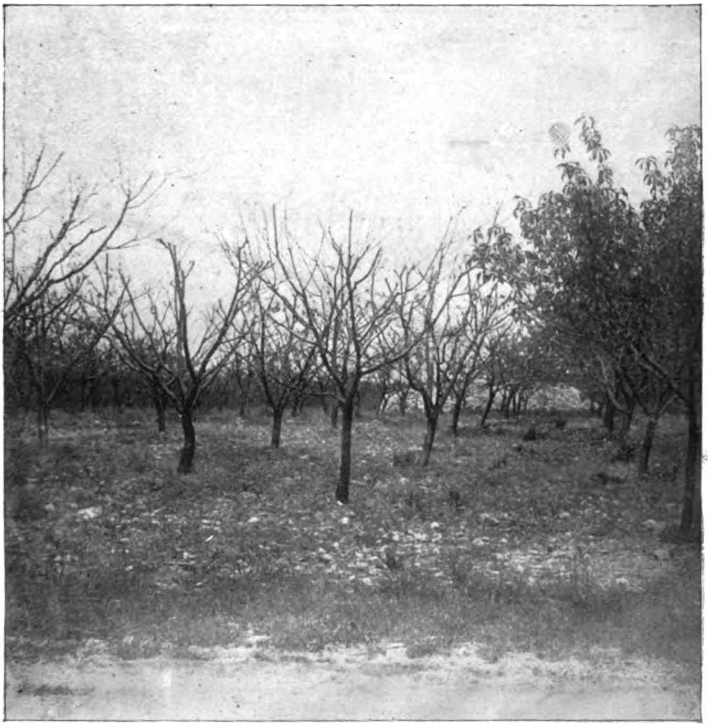
On the premises of C. W. Shoemaker, at Waterville, Ohio, there stands a Wilder Early pear tree, that for several years was badly infested with the Scurfy Bark-louse. The tree was stunted, and made little growth each year. Two or three years prior to 1900, the tree was sprayed in spring with kerosene emulsion, which killed many of the insects, and the tree afterward made a better growth than it had previously done. April 2, 1900, this tree was painted with crude petroleum, the analysis of which I have not been able to secure. On

Plate I.



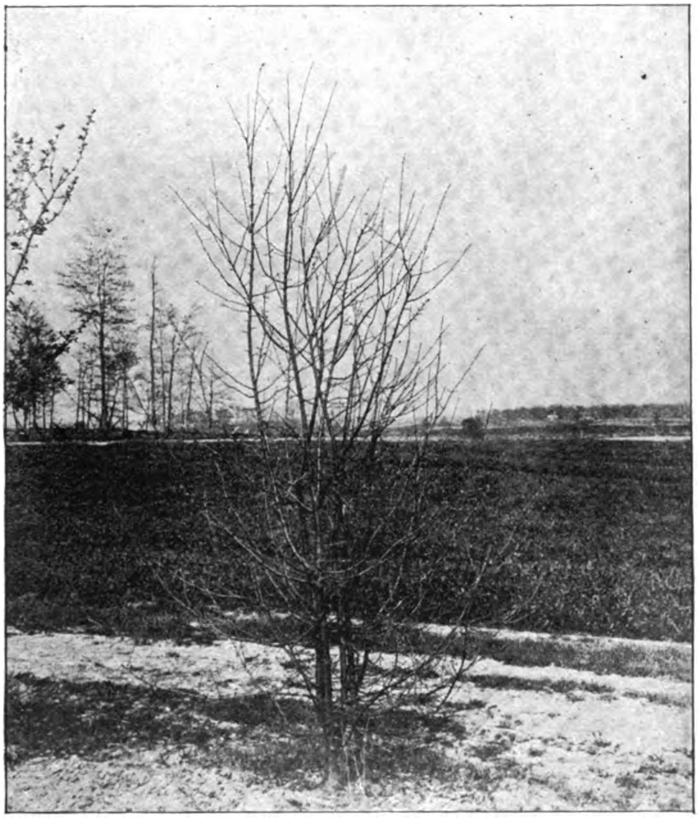
Harpalus Pennsylvanicus. Larva Pupa and Adult.

Plate II.



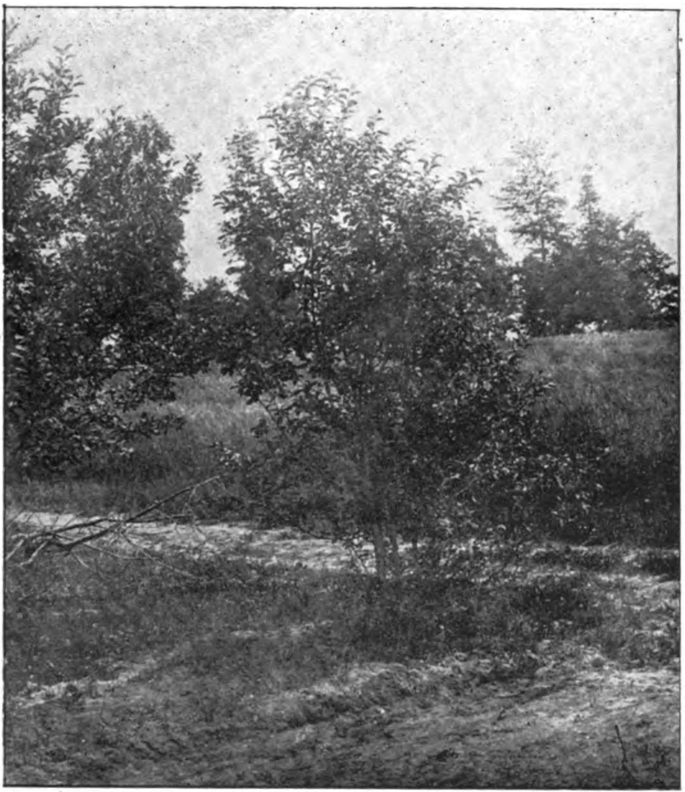
Some of the effects of the application of Crude Petroleum in the Hadden Orchard.

Plate III.



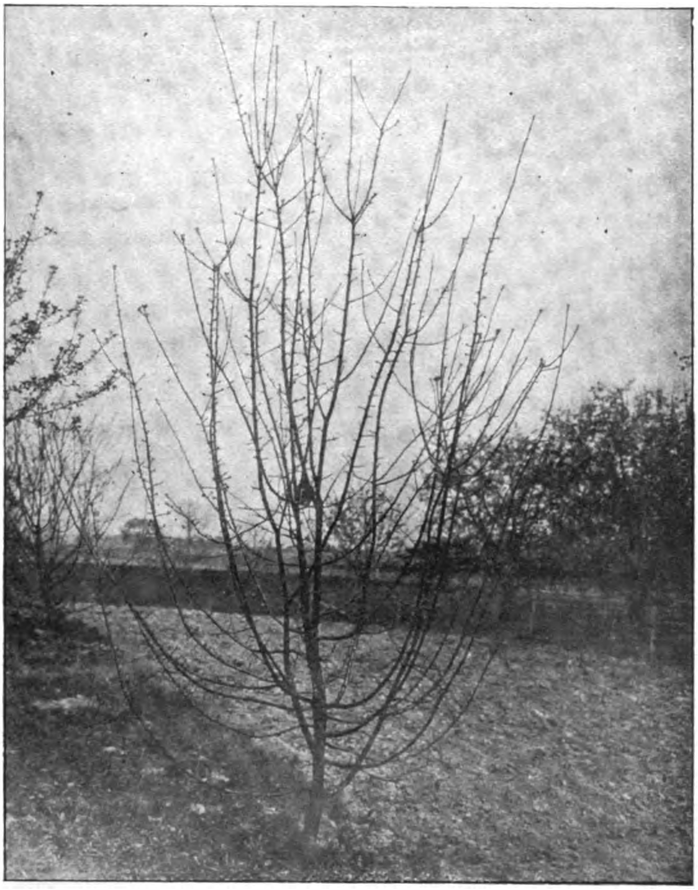
Sprayed March 25, with 10 percent Crude Petroleum.
Photographed May 7.

Plate IV.



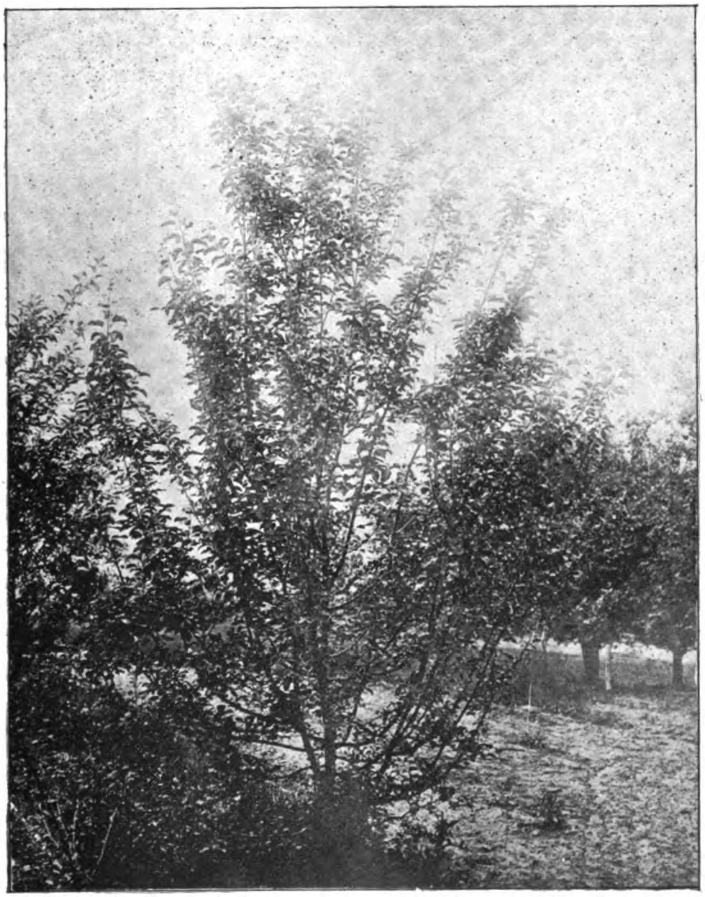
Same tree photographed June 13, from slightly different direction.

Plate V.



Sprayed March 23, with 100 percent Crude Petroleum.
Photographed May 7.

Plate VI.



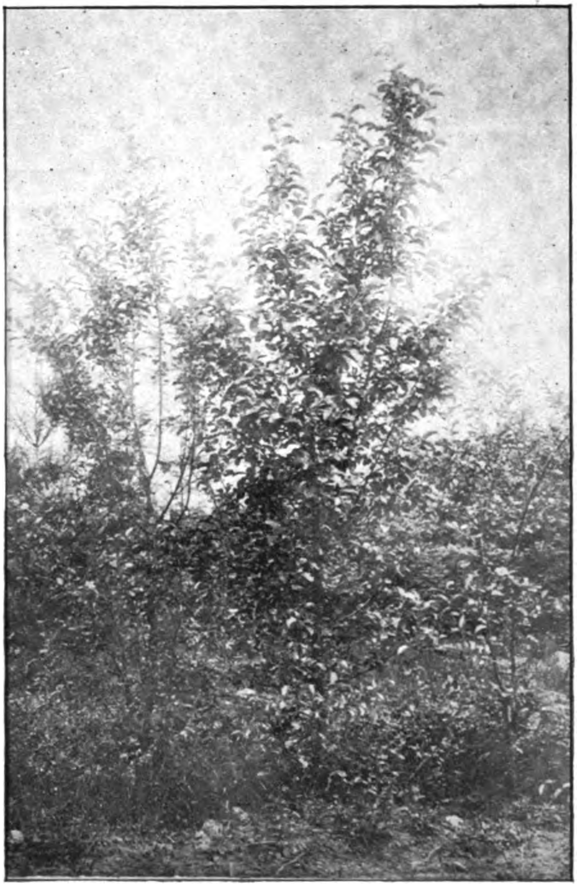
Same tree photographed June 13.

Plate VII.

Unsprayed, Photographed May 7.

(Plates II, III and IV after photographs by Hinman.)

Plate VIII.



Unsprayed, Photographed June 13.

August 17, 1900, I saw the tree, and the bark still gave good evidence, by its color and shining appearance, of the presence of the petroleum. The growth has been vigorous, and the foliage was of the most healthy color. The Bark louse seemed to have been quite exterminated.

On March 23, 1900, a row of three-year-old seedling apple trees, on the Station grounds near Wooster, were treated with crude petroleum of different strengths, applied with a Deming kerosene attachment, the applications being made by two of my assistants, Messrs. Newell and Roudebush. This petroleum was taken directly from oil wells at Lodi, southern Medina county, and its chemical composition shown in "Distillation A." Different trees were sprayed with different strengths of the oil, varying from 10 percent crude petroleum and 90 percent water, Plate III, up to 100 percent crude petroleum, Plate V. In no instance were the trees permanently injured. The effect was simply to retard the development of the foliage, as illustrated by photographs taken on May 7th. At this time many varieties of apples were in full bloom. The Winesap and Rome Beauty were showing their first unfolding blossoms. Strangely enough, the effect was rather more marked where the 10 percent solution was used (Plate III, than where the 100 percent was used (Plate V). Where we used the 40 percent, the retardation was less than where we used the 20 and 50 percent crude petroleum, the effect of the 40 percent being about the same as the 100 percent. The 30 percent was almost the same in its effects as the 10 and 100 percent mixtures. The unsprayed check is shown in Plate VII. June 13th the trees were again photographed, and as shown by Plate VIII. the normal amount of foliage had been put forth, and the leaves were exceedingly healthy in appearance, and seemed larger than those on the unsprayed trees. An examination of the trees the middle of October showed that the sprayed trees were really holding their foliage better than the unsprayed. Nearly all of the leaves had dropped from the latter, while scarcely any had fallen from the sprayed trees. The trees sprayed with the 100 percent crude petroleum seemed to have held their foliage better, and the color was more fresh and vigorous than on those sprayed with the diluted petroleum.

While all this indicates that crude petroleum may be used once upon apple with a strong probability of no detrimental results occurring from its use, nevertheless the question is yet to be settled as to whether one or more additional applications will result in the same way. It seems to me that this whole matter has not yet reached the point where we will be justified in saying to the public that it will be safe to use crude petroleum. The practical question is not whether an expert can use this as an insecticide with safety, but whether it can be safely trusted in the hands of inexperienced men who are not trained in exactness of methods or quantities. I do not wish to be understood as in the least denying that there may be something in both crude and refined petroleum that may, in the future, have great value as an insecticide, but that, for the present, we should be content with investigations, and be exceedingly cautious in regard to recommendations until we have at least found out the reason for such widely diverse results being obtained from applications so nearly alike in point of materials and methods.

It must be remembered that our experiments with crude petroleum at Wooster, Ohio, were made upon seedling apple trees, which, though they might have possessed different degrees of resistibility might, on the other hand, have been less susceptible than any of the grafted varieties. The selection of these trees was not a matter of choice, for they were the only ones available at the time. Next year, we shall endeavor to reverse the experiment; that is, where the ten percent mixture was used this year we shall use 100 percent next year and vice versa. A large number of experiments are also to be carried out upon different varieties of apple, in different parts of the state, using different strengths of the crude petroleum.

PETROLEUM DISTILLATIONS.

		A	B
Specific Gravity		35° B	34° B
Light Naptha	80° C	1.49 percent.	14 percent.
Heavy	80° to 120° C	4.35 "	1.63 "
Benzine	120° to 150° C	5.03 "	3.82 "
Light Burning Oil	150° to 200° C	7.64 "	13.48 "
Heavy Burning Oil	200° to 250° C	13.54 "	12.03 "
Residue from	250° Dist.	68.70 "	68.72 "
	Totals,	100.75 percent.	99.72 percent.

A, from Lodi, O., well. B, from Gypsum, O.
Distillations by J. W. Ames, Assistant Chemist, O. A. E. S.
B contains sulphur compounds.

Another gentleman, Mr. M. Southard, near Lakeside, Ottawa county, has also used crude petroleum, and, while much is being said in the papers about the effects, a careful unprejudiced inspection of the premises by my assistants does not help us very much in solving this problem. Mr. Southard used a petroleum from a well near Toledo, and the soap was of home manufacture. Where the crude petroleum was applied clear, the trees were killed in the majority of cases. Of three trees treated, two with the soap and one with crude oil painted on in both cases, one treated with soap and the one treated with petroleum were killed, the second tree receiving the soap treatment alone surviving. Where 25 percent crude petroleum mixture was applied by spraying to large apple trees, no injury seems to have resulted, and the body and largest limbs seem to be little affected with scale, but as a rule both where the petroleum mixture and the soap was applied last spring by spraying, there is now plenty of scale and about an equal number of dead trees. There are two points that must be taken into consideration in considering these facts and these are that in many cases trees have been virtually killed by the scale before treatment was applied, and the other is that where the scale has practically full possession of the surrounding country, no tree that is not immune to attack can long remain uninfested and that, too, to a serious degree, and this was especially true during the last two fall seasons which have been exceptionally favorable for the development of the scale, and even if cleared off the trees in spring, they may by November be as abundant as before. While it does not appear that the apple is likely to suffer from a single application of crude petroleum, no one can as yet say what a continuation of this treatment would result in, and we now know that a 25 percent mixture of petroleum and water, even when applied in spring, will not entirely protect the trees from attack during the following summer, as we had hoped would be the case.

The most that can be said is that in petroleum, either crude or refined, we have a substance that will kill the scale, but it is a dangerous weapon, and no one can as yet foretell what the results of an application will be. There is an opening for a long series of carefully executed experiments and observations, and the Department of Nursery and Orchard Inspection of the Experiment Station expects to carry out just such work on an extensive scale during the coming winter.

President Cushman: Gentlemen, you have heard the report of the Committee on Entomology, and the use of crude petroleum, by Professor Webster. The report is now before you for consideration.

Dr. Chamberlain: Mr. Chairman, I would suggest that as we are to have a report from the Scale Commission on the work actually accomplished by that commission, it might be well to defer the discussion of this report until we get the whole subject before us. We may, from the other report, get answers to some of the questions that we should otherwise needlessly ask now.

The President: I will now introduce to you Mr. R. H. Warder, of Cincinnati, who will give us a report of the work of the Scale Commission.

Mr. Warder: The subject is very large and the damage which has already been done by the scale, and which is likely to be done, is very alarming. You probably know that at the last meeting of the Legislature, some effort was made to put Ohio in line with other states, and specially that Ohio might use her influence in getting national legislation on the subject. Much to the surprise of some of us, the Legislature acted, but the appointment of a new commission and the creating of a new office was very much opposed, so great was the objection to that idea. The net result of it was, however, that an appropriation of $15,000 was made for that purpose, and the matter put into the hands of the Board of Control of the Experiment Station. It was a work that the board had not asked for and did not desire. After some delay, the entomologist of the Station was appointed chief inspector, and went to work. The net result may be summed up as follows:

REPORT OF THE CHIEF INSPECTOR OF NURSERIES AND ORCHARDS FOR THE STATE OF OHIO, FROM JULY 9 TO DECEMBER 1, 1900, MADE TO THE BOARD OF CONTROL OF THE OHIO AGRICULTURAL EXPERIMENT STATION.

Since July 9 there have been 144 nurseries inspected and 157 certificates issued; 13 nurseries having been inspected prior to that date. Total amount received from fees for nursery inspection, $1,530; fees received for superintending fumigation, $40; making the total receipts from fees $1,570.

No treatment has been applied or property destroyed by any person in the employ of the Board of Control, and therefore no fees received from that service, but the following numbers of trees and shrubs have been treated or destroyed by the owners, in accordance with my directions:

Trees destroyed	7,270
Trees treated	22,033
Shrubs destroyed	
Shrubs treated	28,700
Osage Hedge destroyed	60 Rods.

There were destroyed or treated on account of being affected, or in dangerous proximity to other trees and shrubs affected by the insects or diseases mentioned in the law, and in numbers as follows:

San Jose Scale,	treated,	50,681	destroyed,	6,597
Black Knot	"	52	"	148
Peach Yellows	"		"	26

The total expenditures to December 1, 1900, amount to $3,040.58, which covers salaries, printing, travelling expenses of inspectors and three spraying machines.

July 10th found me in charge of the work of inspection with two assistants, and 95 nurseries that must be inspected before August 15th. One additional assistant was added temporarily on July 16. It is but fair to state that at the expiration of the time established by law but one nursery remained uninspected and this was inspected on the 17th of August by myself. Since then many additional applications have been made and are still being made and the nurseries inspected, though this adds greatly to the expense and interferes greatly with the orchard work. I have been obliged to send inspectors into a locality three or four different times, to inspect what might have been done on a single visit. This has greatly increased the cost of nursery inspection the present year, and this can be accomplished another year much more expeditiously and at much less expense.

The inspection of orchards and grounds is slow work at best, and especially so where the infection is slight, or along the borders of an infested territory, for, in such cases, the most careful and critical inspection is necessary to determine that the San Jose scale is not present and treatment will not be necessary. In going over an infested area, taking the tree and shrub growths, large and small, as they run, a good inspector will average about 700 per day, but out on the borders he will do well if he inspects half as rapidly.

What we have termed the Mentor outbreak covers an area of about 25 square miles. The section extends from the Lake Shore, just west of the Willoughby township line, southward into Kirtland township, and this might be termed the base of a triangle, the apex being about three miles from the west line of Painesville township, along the C. & P. Electric R. R. and containing within its boundaries the whole of the village of Mentor. Inspection work was finished here about the first of October. Little or no effort has been made by the people to carry out the instructions of the Board of Control in destroying and treating infested trees and shrubs, with the result that the law will probably have to be rigidly and firmly enforced.

The outbreak in Ottawa county, known as the Lakeside section, covers an area of over 15 square miles, as that much ground has already been inspected over and the end has not yet been reached, the territory extending from Sandusky Bay to East Harbor.

The inspection force has normally been three in number, with one or two laborers. Recently two of the force have been placed in charge of treatment of premises, leaving, at present, two inspectors and one laborer to continue the work.

In July circular letters were sent out to all of the transportation companies doing business in Ohio, calling attention to that portion of the law relating to the duties of common carriers. A number of these promptly issued circulars to their agents, and I think all are doing their best to see the law properly enforced. My reasons for thinking as I do lay in the fact that several cases have come under my notice where nursery stock has been offered for transportation without the required certificate of inspection attached and has been promptly refused, not only when offered by individuals but when coming from connecting lines as well.

So far we have devoted nearly all of our attention to the San Jose scale, and in localities where the greatest financial interests are endangered. No attempt has been made to seek out even this most serious pest, for the reason that we are overwhelmed by outbreaks that are well known. During the coming summer it is expected to take up the matter of Peach Yellows in connection with the San Jose scale and endeavor to push this feature of the work as fast as possible. It must be remembered, however, that the bill as drafted calls for $25,000, while only $15,000, a little more than half of the amount asked, was given us, while the task has proven about twice as great as we supposed, from which it will be readily observed that we cannot hope to accomplish all that we would have been able to do under a better financial support.

RECAPITULATION.

Total amount paid for labor inspection to December 1, 1900	$3,564.68
Total amount received for inspection and superintendence	1,570.00
Net cost to December 1, 1900	$1,994.68

Respectfully submitted,
F. W. WEBSTER, Chief Inspector.

Speaking on the subject of compliance with the inspection law of the state, Mr. Warder remarked that some nurserymen were not disposed to observe its provisions. He said, "because some people were ignorant of the law and because some nurserymen didn't intend to fall into line until they realized the necessity of doing so, and then they yielded more or less gracefully. There have been some small nurserymen in Ohio who thought they could avoid the expense of inspection, and that inspection was not necessary for their special purposes. One nurseryman received a copy of the law and was at first very cool about it. A second copy of the law was sent to him. He wrote to the chief inspector saying that they had looked over their stock and there was no scale there, and he thought it was not necessary to have an inspection made. The inspector wrote back and called his attention to the law. His nursery was a recognized one, and if he didn't have an inspection made, "he would not be allowed to go into market." This was in September. He then came down very gracefully and asked for inspection. I was very glad to find upon examination that his nursery was entirely free from disease, because he had been buying from infested regions. I was specially apprehensive as the nursery was within a few miles of my home place."

Mr. Warder continued as follows; speaking of the condition that existed in the region of Mentor: A large number of you know about that part of the state. It is settled by intelligent people who have adorned their homes and planted much fruit, besides the regular professional orchard and grape growers. The people are thrifty, and they do not propose to idly submit, and see the entire results of their work of past years swept away.

An epitome of the work may perhaps be expressed in a few figures. We have paid out for all purposes to date $3,564.68 in preliminary work, buying machinery and training inspectors. You know unless you are trained entomologists you will find it very difficult to distinguish this scale from others, and if you take a new man and put him on inspection work, you will find that he has to be trained to do that work just as in any other business. It is not every man that can learn it; because many of these insects are so much alike that it takes a trained observer to distinguish them. I think the work has been very well done so far. Not one of us in the state had any conception of the spread of this disease. No one knew it was so bad; no one knew how destructive it had been and how many trees had been killed in certain sections. At Mentor and Lakeside no one imagined it was as bad as it is. There is an outbreak in Hamilton county. Within the last three months the scale has been found in many scattered places in Cincinnati; when you imagine what it means to go into a town lot which may have a dozen or more ornamental trees—or it may be the residence of some wealthy man who has a place of three or four acres which contains several hundred or more trees—you can realize what sort of obstacles we have in our way to get at this pest. The last time the nursery inspector was in Hamilton county, he, like myself, was appalled. Since that time I have seen it in some 23 places, and mostly in Osage hedges. Some of that hedge has been cut down to a height of six or eight inches, which leaves it almost as bad as it was before. Some people say they will take the whole thing out when the inspector comes and it is ordered by the state commission.

There has been some opposition to this treatment, but I believe the common sense of the people will sustain the commission, at least for a year or two, in the expenditure of the money already appropriated. Let us see what can be done. It may be that natural checks of this scale will be imported here in a very few years. When I tell you that some of the best nurserymen in the United States have contemplated giving up their business, you will know how they, as business men, look upon this pest.

In Georgia, perhaps Mr. Albaugh will remember, many thousand bearing peach trees were burned by order of the state commission. Professor Forbes thinks that the pest may be exterminated, but I think that he is not very sanguine, however, "Hope springs eternal in the human breast." Much can be done in this matter by United States legislation. Professor Forbes is working to have uniformity of inspection by the different states, but in the meantime the propagation of this insect goes on uninterruptedly, and until very late, if the season be warm. I saw at Geneva, New York, where the Experiment Station is studying the scale, about the 10th or 12th of November, a great many quite young insects. They had had no severe frost. In a Painesville paper which came to me this morning, there is this editorial:

"It is no less strange, than regrettable, that a single owner of property in the San Jose scale infected district, just west of Painesville, is inclined to harrass the state authorities in the commendable work of resorting to rigorous methods to stamp out this ruinous tree blight which is spreading slowly, but with inevitable certainty, over one of the most valuable horticultural sections in the state of Ohio.

"Under the provisions of a new law, authorized state officials have made a thorough inspection of the Mentor district where the fruit tree disease is found and its extent and advanced form are alarming in the extreme.

"It is not a fancied condition. It is a bald and unpleasant fact. The scale is the most deadly and defiant of parasitic fruit tree destroyers. It spreads rapidly and yields to no ordinary remedies. It is certain ruin to every fruit tree and ornamental tree it attacks, if unchecked by proper treatment.

"These facts are not unknown to the owners of infected premises in Mentor and the western edge of Painesville. Every property-owner interested has been given full information. He knows that if the blight is not destroyed, it will steadily devour the life of every fruit tree on his land. Not only this, but it will infect neighboring premises.

"Here is a point in social ethics that the state takes advantage of in framing the law providing for the destruction of the scale. It might be said that the state has no right to compel a man to apply any certain means to save his own property from ruin. This much may be granted. If any owner of property is willing that his trees should die of disease, it would in itself be nobody's business.

"But it is not to interfere with any man's license to let his property go to waste that the law, to rid the state of the scale, has been enacted. It is to avert the danger of a blight which threatens the whole community, the whole country, and the whole of Northeastern Ohio.

"San Jose scale is a tree contagion. An owner of property who persists in permitting it to become a source of danger and eventual ruin to the property of his neighbor, is to be condemned.

"Men who believe the law authorizing the horticultural inspector to go onto premises and treat and destroy trees, will not stand the test, are treading on dangerous ground. The law has its basis in right and justice, and will be enforced to the letter.

"The scale should be stamped out in the Mentor district with out delay. It has spread to alarming limits. Vast acres of the greatest nurseries in America are in danger. If the blight spreads to the east much further, it will enter the great nursery section. It is now at the very limits of West Painesville.

"At no other point in America has the disease gained such firm lodgment in a village as in Mentor. It attacks shrubs and many kinds of lawns as well as fruit trees. It will soon destroy valuable ornamental trees and what this means to any residence section is very plain. It would be a real calamity if the disease should spread into this village.

"In the face of these facts, it is hard to understand why any property-owner in Mentor should seek to hinder the state inspector in the work of either spraying or cutting and destroying trees as the case may require. They are permitting on their premises what will cause damage to their neighbor.

"What is more, they will find that the state authorities mean business. The inspector will enforce the law at all hazards.

"The wise course for property-owners would be to give every assistance in the good work of exterminating the scale in the Mentor district."

That is just calling attention to the point I would like to have you all think of, whether or not, while a man has certain rights, that chiefly he has a right not to injure his neighbor.

Of course there will be a report presented to the Governor in a short time as provided by law. To conclude; we know more about the insects and inspection work than before. We have spent to date the net sum of $2,000, and the experience and information gained is worth 50 times that much money to the state of Ohio.

Mr. Albaugh: Inasmuch as Mr. Warder has referred to me and the section in which I am interested outside of this state, and for some other reasons, one of which is because I am one of three committeemen appointed by the National Nurserymen's Association, and this is our third year in our effort to get national legislation; we have already made two trips and spoken before the agricultural committees of the House, as well as the Senate, and expect to be there this winter—that I will occupy any of your time.

First, I want to say that I think the nurserymen especially ought to congratulate themselves, as well as the state, that the state law of Ohio has put this whole matter into the hands of as competent a commission as that that represents us in the Experiment Station. (Applause.) I. for one, feel very much gratified to think that that part is in the hands of a committee who will be careful, who will not condemn until they have reason to condemn, and who will fearlessly investigate and find out and do what they can to keep insects down. Allow me to say that the nursery interests of this state, which amount to many millions of dollars, with this new pest before us and around us, tremble in the balance as to what our future may be. There are at least three companies represented on this floor this morning of at least $100,000 capital each, and if their nurseries were invaded by the San Jose scale they would not be able, under the law, to obtain a certificate, their business and their capital would be practically wiped out. So I say you will pardon us for feeling deeply interested in a subject of this kind. You will pardon the seeming praise that I have given, because I have such confidence in the man who has just spoken to us (Mr. Warder), and allow me to say that that confidence comes down from the father, who was a horticulturist in this state and stood without a peer or a parallel.

At Tifton, Georgia, there were a great many thousand trees destroyed, some miles south of where our orchards are located. They have a strict law in Georgia, and they have a committee in each county. There was an outbreak of the San Jose scale not over 10 miles from our orchards, and they tried treating with whale oil soap, but there is only one way of treating it and that is with the mattock and the axe; and the committee, of which the superintendent of the orchard is one, intend to use the same kind of treatment wherever there is an outbreak. We tremble to know what the outcome is going to be. In one county we have 9,000 acres and 500,000 trees. One attack of the scale there would wipe out a capital of between three and five hundred thousand dollars. So that in regard to the San Jose scale some of us, at least, feel that matter very closely, for it not only interests us every way, but it touches our pocketbooks.

In regard to our law, I would say it is, probably, as fair as any of the state laws. In Virginia they have a law in which they include the Woolly Aphis as one of their dangerous insects, and if there is a nurseryman here present, or one who can rise up in the National Association, or one in the United States today that has an acre of apple trees that can hold up his right hand and say that he never had a Woolly Aphis on his land, I want to see him. So that there is danger of people overdoing it. Now, you take the same state of Virginia, and before you can send a bundle of trees by express or freight into that state, you have not only got to have the certificate of Professor Webster or his assistant on the tag on the trees, but you have got to put on another, that of the F. F. V.'s, that says that Professor Webster knows what he is doing and that those trees are all right, from end to end, Aphis and everything. (Laughter.) We know from personal experience because not two months ago we got from the Experiment Station of Virginia 3,000 tags to be put on top of Professor Webster's tag, and I want to say that I object to putting anybody on top of Professor F. M. Webster, of Ohio. (Applause.) These things make the national committee think that we ought to have national insect legislation. You can put state legislation on top of it and assist, but it is all important to the vast horticultural interests of the country that we have practical national legislation, and the horticultural interests of the country are the interests of the nurserymen, because without nurserymen we would not have orchards. So that what interests the orchardists, what interests the fruit growers in this association, interests the nurserymen, and what interests the nurserymen in this association, interests the fruit growers. Their interests are alike; they intermingle with each other in such a way that you can not separate them. You can not raise an orchard without trees, and you have got to have somebody to grow the trees. Everybody can not grow trees. Brother Harrison there, and I have been working on it for 40 years, and what we do not know would fill a great many more books than what we do know about the business.

I hope that whatever may be done by this Association, not only here in this meeting, but also through its officers elsewhere, may be to hold up the hands of this commission with its headquarters at the Ohio Experiment Station and the officers that they have appointed under them, and we will all endeavor to so cooperate that we will be able to stamp out this most dangerous insect. I have met in Washington, the last two years, the leading entomologists of our country. I have met Professor Smith, of New Jersey, and Professor Johnson, of Maryland, and Alwood, of Virginia, and they have, by their own statements ten trees affected with San Jose scale to one that we have here. They fumigate their nursery trees. We do not know, it may be best, but still fumigation not done well may be like spraying with kerosene, or with crude petroleum, it may be something like the doctor's medicine, warranted to cure or kill, and most likely the latter. There are a great many things connected with this little pestiferous yellow scoundrel that we get from Japan as the professor supposes, that we ought to know. If it had come from China, we could stand it a little better because we do not expect anything from those infernal scoundrels, but to come from a little country like Japan, that seems to want to stand well with the United States, and be the United States of the Eastern continent, is too bad. We are sorry that it came from Japan, if it did come from there.

I hope that all orchardists, and people who have orchards out and other trees, will cheerfully submit to the enactments and the effects and provisions of the law, to the end that this insect may be curbed if not entirely stamped out. If the people, as seems to be indicated in that editorial read by Professor Warder, persist in endeavoring to fight the law, we will have a great deal more trouble than we had before. There is one little thing in the law that, while I am not sorry that it is there, works a hardship. There are here and there berry growers, strawberry growers, raspberry growers and blackberry growers, persons who grow a few vines taken from the layers. There is no distinction in the law as to the size of the nursery; when it comes to inspecting Mr. Harrison's grounds or my grounds, we do not object to paying $10 for the first day's inspection and $5 for the next, because we have so much to do, but for the small berry grower, possibly a poor widow lady, who, has but a few plants that she wants to sell, may be not $25 altogether, yet she has to pay the $10 before she can sell anything. Some noted legal talent has doubted whether that part of the law would stand if it were carried to the Supreme Court. I hope it will not be carried there. But it looks as if the small berry grower would have to pay $10 a year and he will either have to be a bigger berry grower or get out of the business entirely.

The President: Have you any suggestions to make in regard to that matter?

Mr. Albaugh: No, I do not know how it can be arranged. It might possibly be amended so that if the grounds were not more extensive than a certain number of acres, the price might be smaller. While it would seem, on first blush, that $10 for the first day an d$5 a day for each succeeding day is not too much, still it would prove a hardship, a very great hardship to a few small growers, and it seems to me there might be a legal point in that right there.

Now, there is another—I won't say it is an insect because I am not a "bugger"; I wont say it is a pathological disease, because I am not a doctor on that line, but there is something, now, similar to what has been talked of here this morning of the gall on the Louden and the other red raspberries, that is affecting the fruit trees, and while it is not in our law, I do not know of a nurseryman in the state of Ohio that would send out a tree that had any of these galls on them, and yet thousands of trees have been lost this year by that same gall upon the roots of the trees, affecting peach trees and apple trees more than anything else. There was a block of peach trees near one of our farms, that was full of these galls, so to speak, probably one in ten was affected, and by the side of it stood a block of plum trees on peach roots, two years old to the amount of 5,000, with not a galled tree in them. I cannot understand it. Nobody else knows anything about it. We have not been able to find out what this gall is, and do not know how to prevent it, or what to do with it. All that the nurserymen can do with it, that I know of, is to make brush heaps until some future generation, some wise man, will find out what it is.

We have lots of trouble in this world in the insect line. You know:

"The little fleas that do us tease,
Have other fleas to bite 'em;
And they again have other fleas,
And so on, ad ad infinitem."

The Secretary: I wish to offer a resolution that this Society extend a vote of thanks to the Board of Control and the staff of the Experiment Station for their cordial and effective cooperation with this Society in establishing this work on an operative basis, and further that we pledge to them our hearty co-operation in their work in the future.

The resolution was adopted unanimously without discussion.

Mr. Pierce: It seems to me that there ought to be some way to remedy this law as far as it affects small growers. It affects them in another way besides the selling. It affects in buying. Now, I go into the Akron market from three to five times a week with berries and garden products and I meet there other gardeners, and I see their berries, and I know they live within eight or ten miles or fifteen miles of where I live, and I can buy my raspberry plants or strawberry plants of them and I know I can get exactly what I want, but if I send to a nursery I may not get what I want. If I send to a nursery there may be a mistake, but I can go right to these men that I have met a hundred times or more, I can go right to their plantation in the spring or in the fall and have my plants dug. A case comes home to me just now. I had orders in for two or three varieties, and I myself bought some of the New Cumberland raspberries, expecting to trade them to other parties, and I paid a big price for the Cumberlands. The result was I wasn't doing business enough to warrant me to get a certificate. One of those men asked me what I was going to do about it. I don't know whether I dare sell those plants. Well, I won't repeat in this connection before these ladies the profanity that he used in reply. And he said: "I have about $30,000 worth of property and I will stand my share to push that question up to the Supreme Court if they want to arrest me." I don't know but what I would help him. I have just as good a right to sell my raspberry plants there at home to my neighbors when I know I haven't any San Jose scale; I have just as good a constitutional right to sell this stuff in spite of the law, as I have to sell my apples or my pears. My apples and pears are liable to have the scale on them.

Mr. Montgomery: I would like to ask Mr. Warder if a man who has a few trees, a few ornamental trees, can send and have his place inspected and get a certificate that his place is free of this dangerous pest, and then can send to other parts of the state, buy stuff by the carload, put that tag o nit and send it out, want to know if that is in accordance with the law?

Professor Webster: It is if it carries the certificate of nursery inspection on it.

Mr. Montgomery: It carries a certificate of nursery inspection put on by the state of New York, say.

Professor Webster: Well, if it was not inspected there the railroads will find it out pretty quick.

Mr. S. B. Christian, Bradford, Ohio: I want to say in regard to paying the fee of $10 for inspection, that I am just like the man that thought he couldn't afford to pay it. I am a small one-horse strawberry grower. I have two kinds of strawberries and one kind of raspberries, and I will give $5 for six plants of anything that will beat them on my soil, but I have my hands tied. I didn't have them inspected. Parties like J. W. Green, from the Experiment Station, have said that they are the best they have seen. He liked them on account of their being of the best quality. There are two different parties that I sent them to, one last spring a year, and one this spring, that have testified for them, one is Mr. Farnsworth, of Waterville, the other is M. H. Ridgeway, of Indiana. If I happen to die the berries will be put before the public. There are parties who have them that will have them inspected if I don't.

Professor Webster: I have seen the hardships in this probably as much or more than any of the rest of you, and to remedy it is not such an easy matter. Now, you think that one who raises strawberry plants ought to be exempt from nursery inspection. I am free to confess that under some circumstaces there would not be any danger, but there is one locality in Ohio where strawberry plants were growing in a peach orchard nearly dead with the San Jose scale, and the strawberries were nearly as bad. If you are going to open the gate you will let everything through. Now, I have to enforce the law. I cannot change it; not a bit of it. It is laid down in black and white and I can not change it. It is a hardship in some cases, but you must remember that your neighbor next door has paid his $10, and why should you not pay yours? If one man has to do it, it is a tremendous hardship if another is exempt.

Mr. Aultfather: I feel this way about that; I think it is right, and if that man's raspberies are not worth paying the $10, if they are as valuable as he says, I don't want them. If I have got one acre of strawberry plants, or an acre of raspberry plants, or an acre of blackberry plants to sell, I want you to know they are free from San Jose scale. I don't want the peach orchards that are infested to be shipping their fruit all over the land broadcast and then compelling me to have my strawberries or peach trees inspected where there is no chance of infection. I think every man should be compelled to pay for inspection.

John Pierce: I want to ask the Professor for some information for myself. I have strawberry plants, and I have a kind old friend, a man living close by who raises strawberries, and he told me a few weeks ago that his strawberries are all dead, and he wanted to know if I could spare him a few. Now, I want to ask the Professor if I am allowed to let him go into my patch and dig what he wants.

Mr. Albaugh: The law says sell or give away, does it not?

Professor Webster: No, I don't think so at all. I certainly should not look on that as an evasion of the law, just to give his neighbor strawberry plants, but I do not know of anybody that is doing business that way. But, if you are growing them for sale, and they go on the market, and go into the trade, then there must be some protection.

The President: There is no desire on my part towards shutting off this valuable discussion that is going on, but we have a number of topics on this morning's program, and it is nearing the noon hour now. I hope if there is any further discussion it will be very brief and right to the point.

Mr. Sweet: I live right close to Mentor. That is the seed-bed of the San Jose scale, and I am very grateful to the Secretary for offering the resolution in behalf of the commission. They came there and did very efficient work, and I was very sorry to hear the brother here (Mr. Pierce) talk about resisting the law. Now, the law does not affect only a few fruit growers and nurserymen; but every man, woman and child in the United States that eat fruit are as much interested as we are.

Mr. Pierce: I wasn't resisting it; I was suggesting the testing of it.

Mr. Sweet: All right; but we want to uphold anything that is going to do us all good.

The President: There is no intention on the part of the chair of cutting off the discussion, but if there is nothing further we will proceed with the program.

Henry P. Johnson, of Fresno, California: Mr. President: I want to state that I am from the natural home of the San Jose scale, and we are holding him in check. I am from California, where we have been pestered with him for 11 years to my knowledge, and I don't know how long before my knowledge commenced. We are holding him in check with a spray of lime, sulphur and salt. It don't seem to increase, and the remedy is simple. We have in our county what we call a horticultural commission, three persons appointed by the commissioners of the county to inspect, and they go into a man's orchard, and if they find the scale they order him to spray, and he does it. They furnish him the formula of the spray and he sprays the tree at his own expense, without any further cost to him than just the cost of the spray and the spraying.

Dr. Chamberlain: It seems to be the opinion of the entomologists that that is the only way we can do it. I believe that is the only way that we can succeed in Ohio.

Mr. Johnson: I never knew a tree to be killed by the San Jose scale in California; it is something else.

Mr. Ohmer: In traveling through California (there are gentlemen here who were there when I was) their trees there in January looked like they were all whitewashed, and I guess that is from the spraying you give them.

Mr. Johnson: Yes, sir, lime whitens them.

Mr. Pierce: I would like to inquire of Professor Webster, or Mr. Warder, why this treatment is not used in Ohio.

Professor Webster: For the very good reason that it is absolutely useless. I can not tell why, but an application in one place will not do in another.

The President: The next thing in order on the program will be a paper by Mr. A. E. Humphrey, on "Our City Cousins as Horticulturists."

OUR CITY COUSINS AS HORTICULTURISTS.

The percentage of our city cousins who are interested in horticulture, in any other than a gastronomical sense, is infinitesimally small, yet, in many ways a fair number of city folks are so situated as to get much satisfaction out of horticulture as a means of amusement, to say nothing of the incidental profit in health and in dollars and cents.

The lots in cities vary greatly in size, but probably 50 x 150 feet is nearly an average for those owned by wage winners—and they are the cousins for whom we write, because they constitute the mass. Of this lot's length, the house with its front lawn usually takes some 50 feet, beside occupying most of the width. Outbuildings, if there are any, are generally ranged across the rear end of the lot, next an alley. Of all the fruits that grow, none will yield a greater bulk (and that of fine quality) than the grape, when we consider the ground it occupies, and no fruit is so well suited to a town lot. Outbuildings, and even the house itself, may be covered with grape vines which, of course, should be carefully pruned each season, and grapes so grown are almost free from rot—that pest of the vineyard. Even the tight board fence that so often divides the back yards of city neighbors forms an excellent support upon which to train grape vines, so there is no reason why the city cousin could not have this delicious fruit in abundance in its season--more in fact than the average family can use at home. The English sparrows may cause trouble by nesting in vines trained against the ends of buildings, hence should be watched and driven off.

The space left between the house and rear buildings is something less than 100 feet long, and most of it should be preserved as a lawn, which is one of the best elixirs of life ever prescribed for a child. And a well kept lawn is good for older eyes that weary of bare walls and barer streets. Such a lawn is best started by sodding, but as this is expensive, seeding may be necessary for many. To make a satisfactory lawn with seed, however, requires extra care and preparation, both before and after the seed is sown.

But back in one of the corners of this yard have half a dozen hills of rhubarb, next to them a small plant of strawberries. Here may be placed all grass trimmings and other waste matter suitable for a mulch at any time of the year, making a convenient dumping ground that should yield many returns, probably furnishing all the rhubard and most of the berries used on the table by a family of four or five persons.

Down the side of the walk from the house to the rear, which walk should be at one side to avoid cutting up the lawn, plant half a dozen trees of an upright growing habit, like the Keiffer pear or Yellow transparent apple. The cash value of fruit from such trees can not be great, but the satisfaction of seeing it grow is something real, and those trees would furnish about all the shade such a small yard can stand, unless it be a single, low-branching tree, like a Vandevere Pippin, well towards the opposite rear corner. Such a tree would furnish a comparatively safe place for the small boy to indulge his ever-present desire to climb, and all the green fruit he ought to stow away inside, yet it occupies much room when fully matured, and might better be left out, especially if the owner wants a little patch for "green stuff" and flowers. But don't let the garden and flowers encroach too much upon the lawn.

On the opposite side of the lawn from the walk, against the other neighbor's fence, have a long bed, only a couple of feet wide, where a variety of flowers may be grown. Such a bed being nearly, or quite a hundred feet long, might have half its length planted to asparagus, a single row, and the rest to flowers. Asparagus, like the strawberry, is never so good as when fresh cut, and when left to make its growth after the cutting season, is more ornamental than some flowers. This last bed relieves the dead effect of the fence, forms a pleasing trimming for the lawn, and gives an opportunity for the acquirement of consideaable horticultural knowledge.

The small lawn between the house and the street should have only a plant or two (and these not large) to relieve the sameness.

One great advantage the city man has over his country cousin is the fact that for four or five dollars extra in his yearly bill for city water, he may have an irrigating plant at hand at all times, insuring greenness for his lawn, and size and quality for his fruit, even in the dryest season.

With a larger or a double lot the city cousin may enlarge greatly on the meagre outline here shown, and even enter on a small scale the ranks of commercial growers.

As the small boy at school labels the picture on his slate, "This is a horse," "This is a cow," so might I say that this paper is only a suggestion for the man without horticultural experience—and of such there are thousands. My city cousin's front yard is often faultless, but a peep over the fence only too frequently discloses a desert—a waste more unsightly than the street. This waste may be made to bloom freely if only its owner may be inoculated with some horticultural enthusiasm.

"Oh wad some power the giftie gie us,
To see oursels as ithers see us,
It wad frae mony a blunder free us
And foolish notion."—*Burns.*

The President: We will now listen to a paper on "Horticultural Opportunities for Young Americans," by W. N. Scarff.

"HORTICULTURAL OPPORTUNITIES FOR YOUNG AMERICA."

The young man who wishes to make his mark, therefore must confront battles of life, will find before him a most serious prob'em.

We live in an age of sharp, keen business competition, to a degree that to win in any avocation requires vim, industry, enterprise and application.

The professions are overcrowded. Manufacturing and commercial interests concentrated to great business centers and controlled by corporations. Even our best farms are slipping from the hands of the original owners to capitalists as investments. To such an extent is this concentration of business, that to the young man there seems nothing better than a position on salary, with but little chance for advancement to anything better than a modest living.

The young man who wishes to make his most, therefore, must confront all these difficulties. And he needs weigh his faculties well, for life is too short for him to make many errors in the choice of an avocation.

Let us then turn to the horticultural field and see what is offered there. One of the strongest points in favor of horticulture is the limited amount of capital required to establish a business.

An acre of ground, a hoe, a plow, and a cheap horse and wagon. This coupled with industry, honesty and good judgment are all that is necessary for a successful beginning. Of course one may begin on a much larger scale, but the chances of success are no greater than from the humbler start. What a contrast from most enterprises where a modest fortune is required to even start in business, to be on an equal footing with some rival concern. It is true there have been many failures in fruit growing, perhaps as great a proportion as in most other enterprises, but there is always a cause for an effect.

Twenty years ago a few enterprising growers made some money from small fruits. At the time there was little thought of it. A few years later, however, farming became dull and many industries relating to agriculture were at a low ebb. Then it was that the tide turned toward horticulture. As if by magic horticultural journals sprang into existence. All farm papers devoted much space to horticultural topics. Catalogues were distributed promiscuously in the rural districts and the glib tongued agent was doing his full duty. It seemed there was a combined effort all at once for the promotion of horticulture, and each seemed to be trying to outdo the other in spreading exaggerated reports of enormous yields and great profits. All this gave great impetus to the business and many engaged in it without a shadow of chance of success. As a result in a few years this large acreage came into bearing and at a time when commercial business was at a standstill. Many who would have bought fruit could not from lack of funds. With a large over-production and few buyers, as well as poor facilities for distribution there was a great glut and for several years the markets could not recover from the blow.

During this dull period as many dropped from the ranks and as rapidly as they had entered—thus leaving the business once more in a normal condition and on a paying basis.

Horticulture is an industry that requires careful and painstaking labor. The plant, the vine and the tree to do good work must have its every want supplied, and at the proper time. And the one to succeed must be thoughful, observing and industrious, fond of his business and an ardent lover of fruit, flowers and growing trees.

Most enthusiasts are of the opinion that all that is necessary for success is to get "pedigree" plants and plant them, and the work is done, and all that remains for them is to wait a reasonable length of time and find every plant, vine, bush and tree loaded with fruit and a ready market at fancy prices. Even a class of people who are willing to work hard at other work, feel that fruit grows itself and work is not a necessary item to success.

Let us lay out a ten acre plantation of fruit, and put upon it a young man of 21 years of age, who is made up of the right stuff. Horticultural literature is now so cheap, and horticultural societies within the reach of all who wish to attend them that anyone may get a fair understanding of the business at little expense and trouble, and reliable enough that he need make but few mistakes, for our journals are now more careful each year about publishing fake fruit stories and reports of enormous yields.

The young man of 21 years should have a little money, but few have not the opportunity of saving some money by this time if they are so inclined. If he has not had the opportunity of laying by a little there is no excuse for his not having habits that would entitle him to sufficient credit to stock 10 acres.

Suppose he plant three acres to strawberries of such varieties as his locality and market would warrant success; three acres of raspberries; one-half acre of currants; one acre of grapes; one-quarter acre of gooseberries; one-quarter acre of dewberries, and two acres of blackberries, and then plant in among the small fruits such tree fruits as do well on his soil, or on the soil of the surrounding country.

If circumstances are such that it is necessary to have ready money to pay expenses, then let there be planted between the hills and rows of fruit such hoed crops as he has a knowledge of, and that will be in demand in his markets. Plant crops that will bring money when it is most needed. Plant melons, potatoes, cabbage, tobacco, popcorn or sweet corn. You can, in this way, grow 50 to 90 percent of a crop of truck with but little extra cultivation more than is necessary for the care of the fruit. By this method there is no reason that with proper care and work the fruit plantation may not be made self-supporting from the beginning and during the first year. The returns the second year should be equivalent to a $40,00 per month salary, the third year a $50.00 per month salary, and increase to $75.00 to $100.00 per month, according to markets and general management. More than this, there is a feeling of freedom about it. There is no one to consult when a day's vacation is wanted, or no one to complain if enough is not accomplished in a certain time.

What a life of pleasure among the ripening fruits, the growing trees, and well-loaded vines, in the fresh air and sunshine, toiling for the comfort of home and family—compared with the workshop of the city, or the office, whose limits are four straight walls.

We are firm believers in life insurance. We believe it the duty of every man to take care of his family and look to their support and comfort in case of sickness or death, but we want to insure on the endowment plan, and we want to manage likewise the company in which we insure.

We consider a paid-up policy in a good bearing orchard of Keiffers or Duchess pears, in hardy peaches and sour cherries; in Japan and European plums, with an abundance of small fruits intermingled, the best insurance, cheapest insurance, and as safe as any of the old line companies in existence, and one that it is not necessary to die to come out ahead. To the young man, the middle aged man, or the man from the city, broken down in health and spirits, horticulture offers inducements that can not be overlooked, or even to the aged, what a grand way of ending a career, in the quiet of the orchards among the fruits and flowers, planted and cared for by his own hands. While the business combines so much interest and pleasure, it is likewise from a financial standpoint second to none of the cultivated products of the soil.

The President: We will now listen to a paper by Mr. W. C. Pierce, on "The College Man on the Farm."

THE COLLEGE MAN ON THE FARM.

From the time that John Howard and his friends established the school that bears his name, the college man has been a factor in American affairs; but not until recent years has the American college been prepared to fit men and women for life outside a few so-called learned professions.

In the days of our grandfathers college graduates were few and these few often had their health impaired by an almost exclusive diet of dead languages.

Today things are changed. No longer can New England be called the Athens of America. Colleges are now numbered by the hundreds, and turn out graduates by the thousands. The study of the classics is on the wane. The student spends more time with the present and less with the musty fables of antiquity. There is more biology, less mythology, more of nature, less of the childish fables of the dead languages, mental expansion instead of memory cramming.

These changes in student life necessitate changes in the life after graduation. Formerly most graduates entered the ministry or studied medicine or law. Today these professions are full to overflowing. Hordes of graduates have entered the various mercantile pursuits, and in the mad race for wealth are undistinguishable from the crowds of hurrying, jostling dyspeptics. That college education which should have put into the life of the youth something more beautiful, more noble than is found in the common product of the market place has lost its influence. The nobler life is stifled by the intoxication of greed.

The young man who leaves his alma mater with high ideals, keenly appreciative of the beautiful and inspired by the associations of the college community, finds upon entering the world that he is not measured by his ability to demonstrate a scientific fact or to correctly reason concerning an economic theory. No, he is measured by his ability to accumulate money. The richness of mind, the manhood which have developed during his years of study, cannot be converted into dollars and cents. He is forced upon the open market, to sell his labor and his time. In a few years he may be found in some dingy office with the inspiration of college days snuffed completely out.

Is there no field open to the college man where he can pursue his work away from the jaded, hurrying crowd Is there no field where he may gain a livelihood without the dulling of his finer sensibilities?

Yes, to the graduate who has not the opportunity or inclination to teach, and who is unwilling to steer his little lifeboat into and be swallowed by the maelstrom of commercialism, I would say there is a fair haven where one may rest free from the storms which agitate the mercantile sea. There is a safe retreat where one may continue the life he learned to love in school days, and that retreat is the American farm. Here he may lead a life as full of spirit as the one which he left on commencement day.

True, if fame is what is sought, the farm is not the place to seek. But—

"Ah, pensive scholar, what is fame?
A fitful tongue of leaping flame,
A giddy whirlwind's fickle gust,
That lifts a pinch of mortal dust.
A few swift years and who can show
Which dust was Bill and which was Joe?"

To the man whose heart is set on fame alone, I have nothing to say.

To him who is ambitious to reach some high ideal, I would say with Beatrice Harraden: "The ideals are not a chain of mountains, they are a stretch of plains, * * * where the corn grows and where men and women are toiling, sometimes in sorrow and sometimes in joy."

To him who looks upon farming and gardening as too lowly a calling, I would put the question, Are they who feed and clothe the world to be looked down upon?

Is that an humble calling upon which rests the success of every other calling? The farmer who realizes the nobleness of his calling is not looked down upon.

Some say rural society is uncouth; this may, to some extent, be true, yet an unpolished diamond is worth more than a paste imitation.

Fidelity if oftener found in overalls and wamus than in a full dress suit.

To those thinking that farming is an occupation only for the ignorant, to those classing the work in field and orchard as unskilled labor, to those thinking

that a college education would be wasted in the country, I would say, Try it and you will think differently. Any one of the various lines of agriculture and horticulture requires a broader and deeper range of thought than any of the city professions.

To those believing the oft-repeated statement: "Farming doesn't pay," I would say that he who has executive ability and is willing to put forth the effort that is required for success in other lines of business, can make a farm a paying investment. Farming is not a speculative, but a safe business.

To him who seeks not to establish a name, but to live, in the fullest sense of the word; to him who seeks not wealth, nor social, nor political power, but who seeks to live near to the great heart of nature and listen to her "various languages," to him who seeks the society of men, not because of their popularity or wealth, but because they are men, to him I would say: Come to the farm, to the garden, to the orchard, to the meadow, to the woods, to the fields, to the rural gatherings. Come with a heart large and warm, to love the rural folks and the rural life; come to the discontented farmer boy. It is not hard work that makes him discontented; all boys love to work if their work means something. It is from the utter pointlessness of farm life that grows the longing for the city. Show him some of the interesting things with which he is surrounded, and he will see the farm in a new light; give him "beauty for ashes," and he will love the farm and the college-bred farmer.

Come prepared to give your life to the profession, prepared to toil and sweat, to rest and think, to rejoice and sorrow; come prepared to bury the college trained intellect, that it may spring up and grow, a blessing to the profession, for "except a corn of wheat fall into the ground and die, it abideth alone."

The President: Is there anything further that the society desires to take up before the noon adjournment? There are several questions under "Things we want to know," that we would like to have answered. One is, "Will it pay fruit growers to build cold storage plants?" I will call upon Mr. William Miller to answer that question.

Mr. Miller: What little qualification I may have to answer this question has been acquired in studying how to build and operate a small room of 800 bushels capacity, two years ago, and another about three times that size last year. The first, or small room was built for the purpose of storing, or retarding the ripening of Bartlett pears. Bartletts ripen two or three weeks before the majority of consumers are ready to care for them. They can easily be kept that length of time, if placed in the proper temperature. In spite of any control I could give the temperature of my small room the pears assumed the rich golden color they assume when just right for the consumer, and which is not just right if they have to be shipped 75 miles by rail to reach him. Pears will not stand up long when taken from cold storage, and for the grower to be successful in storing them his market must be where the fruit can reach the consumer without delay. I didn't store my Bartletts at home this year, but would do so had I a home market.

In answer to the question, "will it pay?" I will say if a large quantity of fruit, cheap ice and a home market, yes; if any one of these is lacking, no. The successful storage of apples depends somewhat upon the same conditions, but not to so great a degree. They may be shipped in cold weather or in iced cars and will not deteriorate so rapidly after taken from storage. So that the matter of a home market is not so essential as with pears. But, to make it pay, the other two conditions, the cheap ice and the quantity of fruit to be stored, remain as important as with pears. The matter of the saving of time in the fall was an important one with me. As our apples were usually handled, picking and piling under the trees, left to ripen by the hot weather which often prevailed, delay in getting barrels and help for barreling left them in no condition for good keeping. With our storage room we place them inside as fast as taken from the trees, and worry over them no more until the hurry of fall work is over, though the rapidity with which the ice melts during the first week of storage is alarming. But there are other things in connection with this question which the fruit-grower should take into consideration. In every city of any size, and in many towns and villages, cold storage plants have been built in a commercial way, and the average grower can often hire his products stored more cheaply than he can do it himself. I would not advise everyone, unless all the circumstances were favorable, to engage in the business.

Dr. Chamberlain: Mr. R. A. Hunt, of Cleveland, built his cold storage house and his ice pond together. It does not take a very large area to get in a large amount of ice. As for cold storage in the cities, I investigated this fully, and found it cost 40 cents a barrel to put apples in cold storage, one week or twenty weeks. It costs 15 cents a barrel to ship them to Cleveland, 10 cents or more for cartage; there you have an expense of 65 cents cost per barrel outright, and you cannot stand up against that very long. You have to have a heavy profit in case of a small crop like this year. I do not believe it would pay anybody to make a cold storage on his own farm unless he has two or three thousand barrels to store each year. I am very far from my orchard. Of course, after I have tried I shall know more about it, but Mr. Miller's success encourages me. Of course, the only advantage of city cold storage is, if your city is a good market, you can market it right from the cold storage.

Professor Lazenby: I should like to ask Mr. Miller what temperature he finds it necessary to have to retard the ripening and maturity of the Bartlett?

Mr. Miller: I would prefer a temperature of 35 degrees, but I find it very difficult to maintain that temperature in a room as small as mine. There is another point that I wanted to mention, and that is that we very often find that the price in the spring is not above that of the fall. Now, take '96. A good many of my neighbors placed their apples in cold storage in Cleveland, and did not get enough advance over the fall price to pay the additional cost of storage. The best point in it that I see is that it saves labor in the fall when we are hurried. It has been our usual method to pick the fruit and place it under the trees until we are ready to barrel, and we are sometimes late in barreling, and the warm weather matures the fruit, often so that it will not keep long in any kind of storage in the winter. Now we can hurry the apples from the orchard into the storage room and have no further worry about them until we are through with our fall work.

The President: How and where are the spores of the black rot of grapes preserved through the winter? I believe that was intended for Professor Selby.

Professor Selby: Briefly, I might say the fungus of black rot is a fungus that passes through three or four spore forms. The early spore form attacks the grape. The later spore forms develop during the winter, usually develop in the old rotted fruit, and that is a general answer to the question of living over of the spores of black rot in the grape. Although we must expect these resistant winter spores to grow in the old leaves, we find them sometimes in the twigs, and sometimes elsewhere. I think, however, that, broadly speaking, the leaves are the chief source. Now, other spore forms develop from them in the spring, and dissemination may proceed from a variety of indirect sources.

Mr. Shirer: I would like to ask Professor Selby how it would do to plow around the plant in the fall and then set the thing on fire?

Professor Selby: It would depend upon how many weeds you had. If you had enough to burn it might do some good. I would think that cultivation to cover over the old grapes would be one of the things most easily done.

Dr. Chamberlain: The first question has not been taken up, "should commercial apple orchards consist of one of many varieties?"

The President: I will call upon Dr. Chamberlain to answer that question. (Laughter.)

Dr. Chamberlain: I think large commercial orchards should consist of one or two of the principal varieties that do best in a particular locality. Of course, a few of the other varieties that do well, one or two or three varieties for a locality might be added.

Mr. N. H. Albaugh: Allow me here to say again, be careful about planting too many trees of one variety together. It is necessary to have different varieties for the purpose of fertilization. Large orchards of any one variety do not fertilize themselves, and do as well as when fertilized by other varieties. I agree with Mr. Chamberlain that a few varieties are the thing for a commercial orchard. I would not plant less than two varieties for the reason that I want fertilization. I do not believe you can plant ten thousand Ben Davis apple trees away from any other apple trees and make a complete success with them, not even with the Ben Davis with its bearing qualities, such as you would have if you had other trees near or among them.

Mr. Ohmer: This morning at the hotel, a gentleman who lives in this city asked me if I would advise planting six or eight thousand trees of a certain kind together. I told him I would not do it for the very reason that Mr. Albaugh has suggested.

Professor Lazenby: I want to say that in western New York that has been thoroughly demonstrated. There are a few varieties there that seem to be commercially superior to the generally mixed orchards, and these men said, "What is the use of planting any but those varieties that do better than any other?" and they planted large orchards. I have personal knowledge of one orchard of one hundred and fifty acres of Baldwins and another of one hundred and twenty-five acres of Greenings. Now, it was found that, while the Baldwins and the Greenings continued to bear well in mixed orchards, these large orchards did not give good results. They were unprofitable, and the result has been that some of them have been top-grafted with other varieties. I think it is just about as unsafe to plant our tree fruits wholly by themselves in large blocks as it is to plant pistilate strawberries.

Dr. Chamberlain: I recognize that fully, and intended to speak of it, that we must have a few of the others for the purpose of fertilization. These facts that Professor Lazenby gives I have known for a number of years in regard to western New York.

And, thereupon, the convention recessed until 1:30 p. m.

AFTERNOON SESSION.—*Thursday, December* 6, 1900.

The President called the meeting to order at 1:30 p. m., and announced that the first thing in order would be the question box.

Question: "Can anyone tell what causes apple scald?"

The President: I suppose discoloration of the skin of the late varieties is what is meant. Can it be prevented?

Mr. Pierce: Doesn't it come from an unnatural condition of affairs? The apple is not supposed to endure a high temperature for a long period.

Mr. Cox: The apples now haven't been in cold storage more than two months.

The President: We have had some trouble with it, but I can not answer the question. If no one will answer the question I have another question here: "What is the penalty for violating the scale law?"

Mr. Cox: I think the fine is from $10 to $50.

Mr. Shirer: I would like to ask if there is any way to get a copy of the San Jose scale law.

The President: I think the Board of Control will furnish it to you.

Mr. Pierce: Isn't this scale law printed in the last annual report of this society?

The President: No, I think not.

Question, by Mr. Brawley: "What causes black streaks in the stem end of potatoes?"

Mr. Humphrey: I think the late rains caused considerable of a second growth. That streak is rather stringy. It ruins the potatoes.

Mr. Shirer: I would like to ask, if the potato is dug before it is fully ripe, whether it will have black streaks; I mean just about a week or two before the tops die?

Mr. Scarff: Isn't that one of the new diseases that Professor Selby told us about yesterday?

The President: Professor Selby, the question has been asked, "what causes the black streaks in the stem end of the potatoes?"

Professor Selby: I would like a little more complete description of it, if the party who asked the question will give it. Is it in the matter of streaks that run as rings around near the skin of the potato, a good distance away from the stem and through the tuber?

Mr. Brawley: Just slightly at the stem end there are streaks just beneath the skin.

Professor Selby: Well, we have a bacterial disease of the potato vines and tubers; you will also find it on the egg plant and the tomato. That makes the black streaks and rings, and it might give such an effect in an earlier stage. I am not sure whether or not we may not have a little bit of that in that fusarium that I spoke about. I should certainly reject all such tubers for seed.

The President: Now, in my case this year, I had some potatoes planted late. They were growing beautifully. I went to New York, and when I came back they were every one dead. I would like to ask the Professor if I am running any risk of encouraging this blight in planting that potato this coming season on an entirely different soil? They grew very nice size for planting.

Professor Selby: If the potatoes don't show any external evidence of the trouble I should consider them entirely safe so far as breeding that trouble is concerned. That is a leaf trouble. I don't know about those new potato diseases I spoke of yesterday; I do not know just how they would work in connection with planting. If the tubers are smooth, without blighted tops, I would consider them entirely safe.

The President: These are smooth. Of course the size is different on account of the blighting right in the midst of their growth.

Mr. Shirer: I might add, Mr. Chairman, that you have the best seed potatoes you ever had. I know that a few years ago ours were the same way. It is on the principle of that second crop seed potatoes.

Mr. Farnsworth: Immature?

Mr. Shirer: Immature. If you keep those potatoes from sprouting you will have the best seed potatoes you ever had. I would suggest digging before fully ripe, before these black streaks develop. I would suggest seed potatoes dug before fully ripe. They will keep better than fully ripe potatoes.

The President: If there is nothing further under the head of general questions, we will now listen to the paper by Mr. F. H. Ballou, on the subject of "Marketing."

MARKETING.

BY F. H. BALLOU, NEWARK, OHIO.

Mr. President and Members of the Society:

For one who, by force of circumstances, has been endeavoring to work out some of the problems of life on six acres, it is apparently futile to attempt to present anything that would be new or helpful to those whose broad acres, liberal capital and well-rounded knowledge of details are devoted to the production of fine fruits that have made Ohio famous as a garden spot.

Commercial horticulture has become such a vast industry, and one in which competition, in all its branches, is so sharp that he who does not regard it as a science and whose methods are careless and indifferent, is being slowly but surely driven from the field. Nevertheless, the intelligent, wide-awake marketman is numbered among those most energetic and prosperous in business. Nor does the wide range in the amount of capital invested by those engaged in growing horticultural products for market, seem always to result in proportionate degrees of success. He who cultivates but a few acres of ground, and gives his personal attention to all the details of production, as well as to disposition, is not only winning a "good living," but is a prominent figure among those who are paying for their homes, surrounding themselves with convenience and enjoying some of the luxuries of life.

The question as to the probable result of one's venture along this line of industry is not so much one of capital as of education and personal characteristics. A practical education, which is the true foundation of success in every business enterprise, is indispensable in the career of a professional marketman. This should be strengthened and developed along the proper lines by reading reliable horticultural literature: by friendly intercourse and mutual exchange of ideas with those who are interested in the same calling; and by a careful study, not only of the markets, but of soil and fertility; plants and their culture; products, packages and packing. One should also be possessed of an innate love of Nature. indeed, it is one of the prerequisites to success in fruit gardening for profit. He who recognizes nothing companionable in his trees, vines and plants, nor discovers among their fragrant blossoms, green foliage and beautiful fruits anything but the promise of the "almighty dollar." is so inclined to become careless and neglectful, that failure is almost sure to be the ultimate result.

Soil and location, too, are very important fundamental features to be considered in the establishment of a business fruit garden. No matter how pleasant a location one may choose, or how convenient it may be to market, if the soil be not adapted to fruit production, all efforts in that direction will be effectually handicapped. Herein lie some of the advantages of our high steep hills. They afford a variety of soils and locations, even within the area of a few acres. Naturally the more elevated western exposures are wind-swept, thin and more or less sterile; the northern slopes fertile, cool and moist; the southern exposures of moderate fertility, light and warm, while the eastern inclines afford a deep, warm productive loam abounding in vegetable matter. These abrupt slopes, deep, narrow valleys and lofty elevations form a system of cold air drainage that often makes its mark upon the market.

The past season a series of late frosts seriously cut the first blossoms of the early strawberries on the lowlands, while upon the high eastern and southern slopes the early plantations, which were at that time in full bloom, escaped unharmed.

This, however, is not invariably the case. Certain atmospheric conditions may, indeed, cause the reverse. In rare instances the bloom on the lowland is protected by a dense fog, while that upon the hilltop perishes in the icy grip of a tardy blighting frost.

While distance from market is truly an important question, it is often given an undue consideration. The young man who establishes himself in the business of horticultural marketing, with headquarters six, eight or ten miles from the city, is looked upon with commiseration by his contemporaries who may be able to time their movements by the town clock. Yet, with good soil, a favorable location and a love for his chosen vocation, this lively object of so much sympathy may not only prove a worthy rival in the market, but a leader in solution of some of the perplexing questions of life.

The problem of what one should plant for profit must be decided by the proven adaptability of the soil for certain crops. Among the virtues deeply rooted in the breast of the average wide-awake culturist, is one that prompts him to endeavor to grow something not produced by his neighbor. But the fact that his neighbor is equally alert along this line would necessarily force him to pursue a course which would probably involve the overcoming of adverse natural condition of soil, location or climate. Should he be so fortunate, however, as to enjoy a greater range of cultural possibilities than his neighbor, it is by no means certain that he will eventually achieve a greater degree of success. With much confidence he may plant, fertilize, cultivate, prune and spray his "pet" crop; and with much satisfaction he may anticipate the profit as well as the honor of creating a sensation in his local market. The sequel of his little enterprise is a characteristic one. Just as he triumphantly drives into market with his first fruits he discovers that his neighbor's uncle over in the next state has just landed a carload of the same kind at the commission house. It is a difficult matter, indeed, in the business of marketing, even for one who possesses both an enviable location and a very selfish disposition, to avoid sharing both honor and profits with his live contemporaries. Bearing this in mind we are led to decide to grow those products that succeed with us and those which the appetites of a hard-working, hungry people demand. One would better be in the "general scramble" than, to use a popular phrase, not to be "in it" at all. Our small fruits, formerly regarded as luxuries by the few who could afford them, have become staples in the economic dietary of our working people everywhere. Especially is this true of strawberries, which, in their season, with bread and butter, chiefly compose the bill-of-fare, for at least four weeks, in thousands of our city homes. It is estimated that our ruddy little "business friend," alone, annually turns the sum of $80,000,000 from the ordinary channels of trade and directs it into the hands of small fruit culturists of the United States.

Our "dusky" little comrade—the black-cap—has also long been a sturdy figure in our markets. True, it is not universally popular as a dessert fruit, in its fresh state; yet for canning purposes it is a general favorite and a source of considerable profit to those who have the proper soil for its production.

The cultivated dewberry, as a candidate for the office of a dessert fruit during black-cap season, seems to be growing in popularity. And when its value for canning becomes better known the demand will surely increase. From the fact that a plantation of dewberries involves a great deal of tedious labor to keep it in the proper shape, it is safe to predict that competition will not soon be so great as to make them an unprofitable crop to grow. Indeed, there are many of our professional fruit gardeners who would hesitate to start a plantation of this fruit from fear of future disagreeable complications. When it comes to a contest for occupation, a healthy, well established dewberry plant is about as invincible as that other Dewey hero.

Red raspberries, when well grown, usually command an appreciative reception at the hands of the consumer. And while we hear of those who are succeeding admirably in their culture, and of markets in which competition is brisk and the demand fully met, it is to be regretted that, in other places the increasing demand is only aggravated by a decreasing supply. Evidently there is something wrong in the neighborhood of the would-be producer. It is a lamentable truth that some of our excellent varieties of recent introduction, which worthily inspired so much hope among our marketmen, carried with them, from certain fields of propagation, the germs of "galling" experiences.

The blackberry, as a delicious, refreshing, healthful fruit, has an established place in the market. There is still a lively competition between the wild and cultivated product, especially in the rougher portions of the state, where scores of acres, in the aggregate, flourish in their natural environment. It must be admitted that some of these wild berries, which luxuriate in sheltered, moist and fertile nooks among the hills, rival the cultivated product in both size and quality. The commercial grower, however has the advantage in that he produces an excellent and uniform grade of fruit which is tastefully put up in clean, attractive packages and offered upon the market in a businesslike way. The reverse is true generally speaking, of the manner in which the wild berries are placed before the consumer.

The currant and gooseberry also occupy a characteristic sprightly corner in our markets. And it may be truly said that a well-cared for plantation of gooseberries represents one of the "sharpest schemes" for making money in which a marketman may engage.

Grape culture is not generally considered profitable by those who, in a small way, are growing fruits for market. Yet there are those who, upon some warm, sunny, well-drained slope of their fruit garden, are displaying their patriotism and winning a profit by producing our national colors in the form of lucious, bloom-dusted clusters of our excellent, hardy grapes. When tastefully put up in small, attractive packages, well-grown grapes sold readily the past season, at four and five cents per pound, while ordinary fruit was sold in bulk, by weight, at one and a half and two cents per pound.

Consumers not only expressed surprise that home-grown grapes of such excellence could be found in the city retail market, but showed their appreciation in a very practical way by keeping their tables supplied with them during the season. Perfect clusters of Moore's Early sold readily at two for five cents. Plums, peaches, pears and apples should also be included in the list of fruits which may be profitably grown for market even by one who cultivates but a few acres of ground.

These will sell more readily and command a better price when carefully packed in small, clean, new baskets, crates or boxes.

Lombard plums, put up in new quart berry baskets, retailed the past season at ten cents per basket, three baskets for twenty-five cents, or $2.50 per bushel.

Well-grown peaches, packed in fifth-bushel baskets, have been sold readily at twenty cents per basket when the same grade of fruit was being offered in bushel lots at 50 cents per bushel.

The fruit gardener who is so situated that he may devote a part of his ground to the production of winter apples, will realize a welcome addition to his income—and at a time when it is most appreciated. For the retail market there is no question but that varieties that one may guarantee to be first-class eating, dessert and cooking apples, will prove more satisfactory than those of questionable quality. However, as a money-maker, upon the wholesale market, even in our smaller cities, there are few varieties than can eclipse our old frind, Ben Davis. An inferior Ben, it must be admitted, is a very poor excuse for an apple. But, especially as grown upon our hills, when fully developed in size and color, and ripened in a cool, moist storage room, they are considered by many of our consumers a very desirable apple. Last season, 1899, at our place, the crop from twenty ten-year-old trees, of this variety sold for $100. If the Ben Davis ranked in quality as highly as it does in health and vigor of tree, hardiness, productiveness, reliability and beauty of fruit, it would certainly be almost an ideal apple. But, for this one little omission, in the creation of an otherwise almost perfect variety, Nature indirectly bestowed upon poor Uncle Ben the heritage of condemnation. His enemies choose to make his defects for culinary purposes a paramount issue; but it can not be denied that there is no apple in the entire list that will stand cooking better.

By no means the least among the important points in successful marketing, are the packages and packing, to which we have already indirectly alluded. He who is so ardent an advocate of economy as to market his poultry and small fruits, in their respective seasons, in the same packages, will, sooner or later realize that his profits have developed "wings." While it is true that an undue regard for "dress" is one of the besetting sins of our day, it can not be disputed that "appearance" is a very potent factor in determining the success or failure of either persons or products. A clean, neatly constructed package will attract the respectful attention of the consumer to even a medium grade of fruit, while an unclean, mildewed, crippled case, though it contain a carefully selected product, will prove repulsive to the sight.

There is a decided tendency, at the present time, to discard the substantial, well kept, private line of berry crates in favor of the cheaply made gift crate. This, of course, is necessary for one who is extensively engaged in the business, and ships his fruit to distant markets. It will be some time, however, before the careful grower, for the home market, whose neatly painted and stenciled crates have become a sort of established "trade-mark," will consider it advisable to make a change. Especially would it seem unwise where one has incurred the expense of proper machinery and forms for rapidly cutting out and building packages to suit his various needs. At "Dale View" we have the necessary equipment for turning out a good package just as cheaply as we can buy a poor one. Our small fruits are almost exclusively marketed in neat, compact little crates holding 16 quarts. They are very light, convenient and easily handled.

In retailing such fruits as grapes, plums, peaches, etc., from the wagon or market stand, small packages, very generously filled, will sell more readily than larger ones scantily packed, even though they really contain the same quantity and are offered at the same price. A full basket is a special temptation to a keen appetite; and a keen appetite is a liberal dictator in the exchange of the "price for the product."

While considering the question of how one may place his fruits before the consumer in the most attractive way, it would be well to observe that he who offers the product of the factory upon the market is rarely clad in the toil-stained blouse and overalls of the hard-working employe. It is the privilege of the horticultural marketman to be a self-respecting "business man," as well as a hard worker at home; and in the role of the former he should dress in a manner commensurate to the dignity of his position. Dusty, rusty, unclean raiment and uncouth manners in the market stall are as decidedly out of place as kid gloves and a silk hat at the handles of the cultivator.

In conclusion, whatever "marketing" may mean to our more extensive fruit and vegetable growers, it certainly means that he who embraces this industry as a means of earning his daily bread and paying for his home, must certainly be live, energetic, industrious and a practical "combination" of proprietor, business manager, salesman and employe. If he be successful he is one who has succeeded in happily blending the freedom and independence of a country home and life with some of the pleasant features of business in the city. As a matter of fact the packing house, in which is presented the last act in the "drama of production," is only a sort of half-way station between the plant and the consumer. On one side intelligent methods of culture have aided Nature's element of light, heat, air and moisture in developing the product. On the other side lies the great city pulsating with its varied industries, humming with business life and activity and bristling with sharp competition in every line. It is here that the decisive battle must take place and the profit or loss determined. Hence he is only half prepared for the conflict who has mastered but the problem of production.

The President: This very excellent paper, to which we have just listened, is now open for discussion.

Mr. Pierce: There is one or two points I would like to except to in that paper. I have had a great deal of experience, running over a period of 30 years, and perhaps my experience is not in the same line with Mr. Ballou's. I judge that he sells in a retail market in a city. I know nothing about that branch of the business, but the question of dress is largely one of taste, rather than of sale, in a wholesale market. You meet one hundred and fifty grocerymen, as I do, sometimes five days in the week—I used to suppose that clothes had considerable to do with business, but I find that several English gardeners coming into that market dress in every-day rigs, in Khaki suits, or something similar to brown overalls, that look very much like soldiers' suits, and some of them can sell all around the dressed-up men, simply because they have good articles and a great deal of it. It don't pay to dress very nice when you handle dirty stuff. Another thing is true, that is, if you peddle small packages, and well-filled, it will be still better than large ones. There is quite a local production of grapes around the Akron market. They use the ordinary eight or nine pound baskets to sell in, and they come in heaped up, and with large, nice bunches on top, but they don't weigh as much as the packages from the lake shore, but they bring considerable more because they are fresh. They sell very quickly. I have had a great deal of experience in peddling from house to house, and I find that where articles can be sold from 10 to 15 cents, and in some lines for a nickel, you can sell a great many more packages than if the packages bring a half dollar or a dollar each. There are a great many persons going around from house to house crying their wares on the street, and some of them have different lines of goods, and it suits the women best to buy a little of every one sometimes. They don't have a great deal of money to spend, and if they can get a nickel or a dime's worth they will buy it quickly, when they would not buy any more. In this way you can work off a great deal of stuff, which you could not if you sold in large packages as you do to dealers.

Mr. Shirer: Friend Pierce's argument reminds me a little of an individual that drinks whisky, and uses tobacco, and lives to a good old age of 95 years. The argument is that whisky and tobacco prolong his life, but nobody knows how much longer he would have lived if he had abstained from those two things. Now, I admit that if a man has number one goods to sell he will get a pretty fair price, no matter how he is dressed, but how much more would he get if he appeared as a gentleman ought to appear? That is the question (turning to Mr. Pierce); you don't know. (Great laughter.) Now, Dayton has a reputation for having the best looking people upon her public markets of any public market in the United States. But, however, there are a few who come in that are shabbily dressed, as Brother Pierce advocates, and some of us have seriously considered the question of taking up a collection and getting them new suits. We don't want to have our reputation run down by a few individuals. So there is something in this question, after all. It reminds me of an instance a few years ago. A man came there with a basket of eggs. I don't remember, Brother Albaugh, where he came from, but he procured a box and stood there by the side of it, but he couldn't sell his eggs. He said a man "can't sell eggs like the ladies. The people like the ladies because they are dressed differently." Now, it certainly pays to put up your article in the best style possible. I don't mean to put the big fruit on the top. Always put the largest in the bottom.

Mr. Ohmer: Do you do that?

Mr. Shirer: Of course I do. (Laughter.) Once upon a time I sold strawberries to a D. D., and his wife, when she emptied them out, threw up her hands, and the old man wanted to know what was the matter. She said: "The millennium has arrived. The big berries are on the bottom." There is a way to put up things so as to look attractive, without putting the big ones on top.

Now, I fully realize that marketing a crop is more than half of the battle of horticulture. We can raise a crop, but whether we can sell it at a profit is another question.

Mrs. Lentz: Mr. Chairman, I told Mr. Lentz this morning I wouldn't come here because there would be nothing to interest me, but you have rather tramped on my toes. I have been selling from house to house for about 18 years, and I have secured the very best class of people in Piqua for my customers, such as doctors and ministers, and I have them from year to year. I go from house to house, and they think we have about as fine fruit as anybody, and I still hold my customers. I don't go in my every-day wrapper. I generally put on my Sunday go-to-meeting clothes. I took my son with me one day, and I sent him into a strange place, and the lady says, "Certainly, little boy, you must have a mother." She says, "You look so neat I will certainly buy from you." So that goes to show that it pays to wear clean and respectable clothes.

Mr. Pierce: I have only a word to say. Some of you seem to get the impression that I advocate a slouchy dress for marketing. I didn't intend that. Anybody can dress in Khaki or ordinary overalls and have them clean and look respectable. Now, I will tell you how I dress, so there need not be any misunderstanding. I wear a "boiled shirt," a clean linen collar and a necktie (great laughter), besides other clothes. I mean to say that in the heat of July and August it is uncomfortable to wear heavy clothes. These English gardeners go without any collar or necktie and without any vest. I draw the line there. I wear my coat no matter how warm it is. I think it looks better, until on the way home I take it off. When a man gets up at half-past three, hitches up a team, gets into a wagon and drives eight miles, and doesn't get back until toward noon, I submit it is a great deal better not to change clothes more than two or three times, and go as comfortable as you can. As regards peddling from house to house, my experience is that the dress doesn't make so much difference, unless you have a very high-toned line of trade. It is the same way in the mercantile business. The dry goods men dress better than the grocerymen. I say there is a great deal of dirt and stain connected with the berry business, and also with the vegetable business, and I believe in drawing the line at a moderately expensive dress, as well as a clean one.

The President: Perhaps we have occupied this line of thought as long as we ought to in discussion. Is there any different line of thought in connection with the marketing of fruit? If not we will proceed to the next subject.

There is one thought more that might be put into practical operation in some communities, if not every one. It is not everyone that wants to go to market or to peddle upon the streets, and three or four can combine and have one man do the selling for the whole community. I think by and by we will get to that. Sometimes one man has not sufficient for a load, and three or four can combine and one man do the selling for all. It will save a great deal of labor and trouble.

Mr. Ohmer: Provided he returns all the money he collects.

Mr. Shirer: We have got to the position where we believe all horticulturalists are honest.

Mr. Sweet: We have got to that place where we will trust every man with whatever is going.

The President: This whole subject of marketing seems to have centered on the retail feature of it. Now it has been a good many years since I have retailed any fruit, but when I was in the business in that way I peddled my berries and such other fruits as I might have to sell to some of the best inhabitants of Cleveland; that is, the well-to-do inhabitants; and I have found that it always paid to have your wagon clean and bright and your horses and harness to correspond, and the packages and everything the same way. I well remebmer (I was quite young at the time), when I started in at the business, a few of my leading customers would say, "Mr. Cushman, it is a pleasure to deal with you; your whole business looks so inviting." Now, the thing to do is to make your business look inviting. Have it correspond. You don't need to wear your very best clothes in order to retail your goods, but wear clean, whole, respectable clothes, and have everything tidy about your business, and it certainly will bring customers. These people who like the better products of the farm and garden, when they see such a turnout as that, know that there must be something good in the fruit you have to offer. Now, there is one thought more in connection with retailing fruit from a wagon. You know men in business of all kinds today are driven to try to think up all kinds of methods of inviting trade, and one thing you can do in selling fruit at retail is to use flowers. At our place, at the time I was retailing small fruits, we had plenty of roses, and you know roses and strawberries go well together. Now those roses didn't cost us anything. It was a very easy matter to pick a hundred or two bunches the night before and put them on the wagon that carried two hundred four-quart baskets of strawberries, and you would be surprised to see how nice it made the wagon look. It will help you to do business. You should conduct your business in the same spirit that other business is conducted in.

Mr. Shirer: That is a good suggestion, and let me add that last year, from a single plant of the Rambler, I sold over $3.00 worth of roses one Saturday morning.

Mr. Pierce: But Mr. Cushman gave them away.

Mr. Shirer: Did he give them away? (Laughter.)

Dr. Chamberlain: If Mr. Shirer didn't give the roses away he gave himself away just now.

President Cushman: I didn't sell them. I was being pressed pretty close in my business by having competitors who were selling fruits on the same streets that I was. I was ahead of them, though, in the roses.

Mr. Aultfather: Some of the finest growers in our section of the country are the poorest salesmen we have, and when we come to compete with them in the market, the best thing we can do is to drop on the back streets until they get through, and the idea of one man doing the selling for several growers in a neighborhood is a good one, and I think would assist greatly in getting better prices, and one man will very often sell more fruit put up in a fine way than a poor salesman will at fair prices.

Mr. Pierce: The trouble in that case is that you can not do equally well by every one who sends his fruit by you, and if you don't sell it they are discontented, and if you don't sell as much for one as the other they will be dissatisfied. I have thrown over that kindness to my neighbors.

The President: In the general discussion on small fruits yesterday we had the apple question quite fully discussed, and this morning we have listened to reports of committees and excellent papers, and now the question of small fruits is open for discussion. I have here a question:

Question: "How may we secure the proper number of strawberry plants to the row at the least expense?" I believe our Secretary has had some experience along that line, and I will call on him to answer that question.

The Secretary: I have felt for some time that this is a very important problem. In order to produce fruit that we need not be ashamed of to sell, whether at wholesale or at retail, we must have fertile ground, and we must employ good cultivation. Given these two advantages, and we are apt to have too many plants in a certain space of ground, unless we select some variety that does not produce many plants. Now, then, how to restrict these plants under those favorable conditions is quite a problem, and I am not willing to say that I have completely solved it; but I have to a certain extent. To begin with, I try to select, as for as possible, varieties that do not produce such an abundance of plants; and then we discriminate somewhat in the distance between the plants; that is, if we have varieties that run very freely, we put them further apart in the row, and then my system has been to allow the runners to begin as soon as they please. Some growers cut them off until late in the season. If the season happens to be dry and a little late you fail to secure the proper number of plants, and your plants do not root early enough in the season to become firmly established. So I allow the first strong runners to establish themselves. After the first rain we go over the runners to fill up vacancies that may occur—try to get about three lines of plants in a row, and the general rule which I give my men is to have the plants from four to six inches apart. Now, then, after we have secured a sufficient number of plants, sometimes when the ground has not been cultivated for a week or ten days, we put the rolling cutter onto our Planet Junior and cut off all the runners that run over into the row; but you still have the runners that run in the same direction as the row. To overcome those, along in September, after we have secured a sufficient number of well-rooted plants, we take an ordinary hoe and cut off the sides of the blade, leaving it about three and one-half inches wide, and go through the row, striking crosswise of the row, leaving strips three inches wide and cutting out a strip three and a half inches wide. This is the only practical way that I can see for thinning them out. By cutting crosswise we tear out all of the loose runners, or nearly so. That is certainly nearly as good as going around and thinning them out by hand, and where you have from 10 to 14 acres, or even 5 acres, you will find it practically impossible to thin them out by hand. I think this is the best practical way that I have found.

Mr. Pierce: Don't that tear out the plants you have already put in?

The Secretary: Not to any extent; it cuts out some, of course, but practically nothing except the runners on the plants that have only recently rooted are torn out. Then, after tearing them out, the next time the cultivator runs through the rolling cutter cuts them off.

Mr. Sweet: Do you cultivate any in the spring?

Secretary Farnsworth: No, sir; not before fruiting.

Mr. Pierce: Do you mulch?

Secretary Farnsworth: We began mulching and are mulching a number of our plantations. There are advantages and disadvantages, but I think in the future we shall mulch, especially our young plantations.

Mr. Scarff: I think a very satisfactory way in getting the required number of plants, with varieties that are inclined to make a great number of plants, is to plant such varieties on the side of a field by themselves. The ground need not be quite so rich for those varieties as others, and we plant them later in the season, perhaps two or three weeks later than the varieties that do not make quite so many plants. In this way you will find that you do not get over half the number of plants that you get in planting them earlier in the season. And we find by training them down the row by fall, in an ordinary season, we have about the required number of plants. If they get too thick we thin them out with the hoe, as Mr. Farnsworth says. If our ground is not sufficiently rich to produce a crop, we fertilize it late in the fall or early in the spring.

Mr. Farnsworth: With commercial fertilizer?

Mr. Scarff: We do not use the commercial fertilizer.

Mr. Whitney: Do you mulch?

Mr. Scarff: Yes; we usually mulch with straw.

Mr. Aultfather: The last part of August, in cultivating strawberries, I sowed oats between the rows. This is the first time I ever tried it. The oats grew up a foot high, but the frost had affected it a little before I came away; but hereafter I shall sow about the first of September. I sowed it between the rows broadcast. There is no other plantation in our neighborhood where they sowed it broadcast.

Mr. Montgomery: Speaking of mulching—and straw is scarce in the state of Ohio this year, and last year it was also—I was driven to use clover chaff; that is, the hulls from the thrashed clover. I used it in the plantation which I expected to plow. It made an elegant stand of clover, and yet the stand of clover did not mature until after the fruit had ripened. I think that is an elegant way where you want to plow down the patch next year and put it in some other crop.

Mr. Scarff: I would consider that a very dangerous method, because if you have a very wet spring you will find the clover seed will start and you will have an elegant crop of clover, but you will not get an elegant crop of berries.

Mr. Johnson: I would like to ask Mr. Farnsworth if it would be safe to do that thinning in the spring of the year.

Mr. Farnsworth: It would be safe, but in disturbing the ground at that season of the year it would be more likely to disturb the growth of the plant. Our object in thinning is to thin just as soon as we can do so safely, so that the plants may have this room to expand and to build up their fruit buds. We get more benefit from the early thinning, just the same as if you are thinning corn early, you get better corn.

John Pierce: I had some experience in mulching with clover. The clover was 10 or 12 inches high. I had a good crop of berries, but I had to pay my girls double price for picking them.

Mr. Cox: In regard to Mr. Aultfather's method of sowing oats, I want to ask if, in a dry season, that would not damage the plants a good deal.

Mr. Aultfather: I had my rows pretty well established by the first of September.

Mr. Shirer: In planting a variety there is another point to consider. We ought to have one that sends out a long runner before it strikes root. Some varieties do not make many runners and at the same time the runners are only three inches long when they strike root, and that is entirely too close. It should be not less than six or nine inches. Don't you see the benefit of this law? I have said that again and again, that you should not attempt to raise plants for both plants and the fruit. For this reason varieties will run out. Now, if they can't sell plants, perhaps they will raise plantations for fruit, and they may have more money at the end of the time without bothering in the spring to dig plants to sell. I never sold many; it don't pay.

The President: This question is not necessarily confined to strawberries; it covers the whole list of fruit. I would like to ask, however, how successful the Clyde is proving as a market variety. Is it generally successful, or is it only in localities? I would like to inquire also about the Ruby.

Mr. Pierce: The Clyde is not giving as good satisfaction around Akron as we supposed it was going to. It is a second rate berry. It has given poor satisfaction this year, while the year before it did pretty well.

Mr. Whitney: Some of you may remember that perhaps two years ago I reported that the Clyde rotted while ripening, so badly that it took half or two-thirds of our crop, but since that season I have had good crops. The pickers quarrel over the Clyde rows, and get mad if they have to pick the Warfield. They hold out longer; they last until the Brandywine yields its crop. It does not run out readily.

Mr. Aultfather: The only trouble I find with the Clyde at my place is that I don't have enough of them. When planting the Clyde, don't be anyways alarmed if you don't have any other variety in the patch. If you do, the only trouble will be to get them picked. The pickers fight for the Clyde rows with me. The last berries were as large as the first, and I will plant quite extensively of the Clyde as long as they behave.

Mr. Kuth: In Indiana, we consider the Clyde our standard berry.

A Gentleman: What is your soil?

Mr. Kuth: We have different kinds of soil.

Mr. Tussing: I will say that the Clyde with me has been a failure. It produced too much fruit and didn't have foliage enough, and consequently lots of the berries were sunburned and soft, and from some cause or other they pulled hard with us. It is hard to leave the calyx on the berry, and, contrary to the testimony here, I have trouble to get my pickers to pick the Clyde berries. They despise them. I promised my pickers this year that we would not have any of them to pick next year. We have but one man in our neighborhood who thinks of planting the Clyde, and that is Mr. Sims. He has a patch of new ground that he has just broken up.

The President: What is your soil?

Mr. Tussing: Clay loam; one end runs into black soil.

Mr. Shirer: Do you use any fertilizer on the soil?

Mr. Tussing: Yes, sir; we use barnyard manure.

Mr. Gatton: The Clyde is a very good berry in Richland county until we get them picked, and it is all right then for a short time, but we have to get rid of them soon. They go down in about five hours. We find them pretty soft.

The President: I inquired about the Ruby, but no one has said anything about that.

Mr. Cox: The first picking we have very nice berries, but if it is dry and hot the berries all burn up after the first picking.

The Secretary: Mr. President, I had never seen the Clyde fruited to any extent until last spring, but I had so much fruit in it that I put out six acres of them last spring, and I wish now I had set out every plant of the Clyde. My berries sold at the top of the market, and the commission man wrote to me saying that the Clyde was A No. 1. That simply shows that the testimony we have had this afternoon means that we must study our soil. There are several other varieties that have not been mentioned. I think Professor Green spoke of the Sample yesterday. The Sample is next to the Clyde as my best berry. It is productive, large, handsome, fine foliage, and will be very valuable where the Clyde does not succeed. With me it is not quite equal to the Clyde because the Clyde will begin with the earliest, last until the latest, give me uniform picking right through, uniform in quantity and size. Now, I am speaking from one year's experience. If it continues as well as it did this year I do not need anything else. Just a word in regard to the Excelsior, mentioned yesterday. I think if we take pains to restrict the plants it will be very valuable; but, like most early varieties, it makes such a multitude of plants that they can not do well unless thinned out. The fruit is large, very early, very firm, not very good quality, but a fine shipper, and where it is properly thinned it does very well.

A Gentleman: How is the Clyde for foliage, Mr. Farnsworth?

Mr. Farnsworth: With me it is very good. We have foliage enough, and it does not make so many plants as to be troublesome.

A Gentleman: How about last season?

Mr. Farnsworth: As I recollect, we had a moderate season. I had some berries rot in the patch.

A Gentleman: Do they require a very rich soil?

Mr. Farnsworth: I think they do, to perfect the foliage and the crop of fruit. I don't know of any berry that will yield a large crop of good berries on thin soil.

Mr. Aultfather: I raised the Ruby in a small way, year before last, but I would not want to make much of a report from it from last season. It didn't do as well as I expected, and I can not give a favorable report this year.

Mr. Shirer: We have a man with us this afternoon that has the reputation of raising the best berries, both for quality and size, in the whole United States, and certainly it would be interesting if he would get up and tell us, in a few words, how he proceeds. I refer to John F. Beaver, of Dayton.

Mr. Beaver: I set all of my plants in the after part of the summer, say the first or second week in August. I make a double row of them, and that is about all the attention they get.

Mr. Shirer: Mr. Beaver's plan is not near as much trouble as the celery growers go to. They often plant a double row, then mulch with well-rotted manure. That is just what friend Beaver does. He sets out the plants about six or eight inches apart, and then mulches with manure. Now bear in mind, he has a lazy man's way of raising berries, and yet people think he devotes a great deal of work to it, and that an ordinary man could not do it. He sets them out and mulches them and that is all he does. He digs up the young plant and only removes it five or ten feet. He puts them out in pots and lets them root there, or transplants them.

I am satisfied it is easier work than raising celery, and there is no doubt it is certainly one of the best ways.

Mr. Warder: I would like to ask if there are any first-class strawberries to be had. I would like to know what first-class strawberries there are for the amateur or small gardener. I am talking about strawberries for small growers. I do not know of any strawberries that will compare with the Burr Pine or the McAvoy's Superior. In asking some eastern horticulturalists about it they agreed with me that there were no first-class strawberries in the market today, for quality and a reasonable amount of productiveness.

Mr. Albaugh: Speaking of the quality of the McAvoy Superior, I am reminded that taste and flavor have largely been sacrificed in a good many cases to size and bushels. We can not expect to get the flavor that we once had, and we must remember that as we grow older the pleasantness of the sour and green apples that we used to steal out of our neighbor's orchards will never leave the taste in our mouths. We may long for those things to come back as much as we please, but our "tasters" are not what they were when we were boys; we can not get the flavor back.

Professor Lazenby: Mr. Chairman, it is just a matter of personal taste, but I think the Marshal is as good as any strawberry that I have ever eaten, and I consider it a standard of excellence in the way of quality.

Mr. Shirer: There are two fruits that are most abominably abused, and they are the Keiffer pear and the Wilson strawberry. The Wilson strawberry used to be picked about a week before it was ripe and pitched upon the market. That is the way they do with the Keiffer pear, and that is the way the Wilson strawberry lost its reputation. I venture to say that there is not a strawberry in existence today that will equal the Wilson in generally strawberry flavor.

Professor Lazenby: Don't it make the sugar taste good?

Mr. Shirer: Yes; it makes the sugar taste good; and then you have a taste that is on the order of the lemonade that you talked about last night. I shall raise the Wilson as long as I live.

Mr. Aultfather: There is a strawberry that has not been mentioned yet that is profitable to me, both for market and table use, and for the people who desire to can them, and that is the William Belt. If you want to find out the good qualities of any of our new berries you want to get the William Belt, but you want to get them thoroughly ripened before you pick them. I allow them to grow until they get dead ripe.

Dr. Chamberlain: I believe the point brought out by Mr. Albaugh is the principal one. There has been more change in the boy of 10 years old than in the strawberries. I tried that this summer. My tenants brought in some wild strawberries, and when I was a boy I thought them the most delicious on earth, but I tried them this year alongside of the

Marshall and the Warfield, and even the Burbach, and all of these better classes of berries that we are using now are better than the old wild strawberries that we used to brag so much about when we were 10 years old. That is the boy of it.

Here the convention was entertained with music by the young ladies.

Professor Selby: Mr. President, I want to bring out this one thing clearly as a matter of information. Secretary Farnsworth has brought some specimens of vines cut from black cap raspberries, as I understand (exhibiting the specimens). He says that he has had trouble of this kind, and I think he is not the only one who has had this trouble with their vines. After they have been tipped they will start a little and then die. Simple anthracnose is not sufficient to account for this death of the vine, and I want to get some idea, if possible, how general this trouble has been. At this moment it occurs to me that it may be the prevalence of the bacterial blight of the raspberry, first described from our Station by Miss Detmers. It may be that this comes up for a time and then goes into the background for a while. How general is this trouble? Mr. Tussing says he has the same trouble.

Mr. Scarff: We have had some trouble in our plantation this year to some extent. We noticed it in the Gregg, the Eureka and the Kansas. It started with blight on the leaves. I can not give you the date, but 10 days afterward they seemed to partially recover from it. It came almost in a night all over the plantation. The plants seemed to be healthy and the next day they semed to be scalded, and in about 10 days they seemed to recover. We tipped our plants and then they had a second siege of it. I should judge this was about the first of September.

Professor Selby: It is a quite serious trouble.

Mr. Scarff: Very.

Mr. Kuth: I would say that we have several acres in the same condition in the western part of the state. The Hilborns, growing side by side with the Eureka, were entirely free from it, while the Eureka are entirely gone.

Professor Selby: I would thank those who are interested in this, for material to work on next season; and I am more inclined, since I have heard more about it, to refer it to the bacterial trouble, which you will find described, those of you who have the Bulletin—volume four, number six, I believe it is, or number nine. The trouble then was quite severe on a few varieties at Columbus, but it has evidently not been prominent recently, because this is the first time my attention has been called to it, and I have been studying the raspberry problem quite a good deal the last half dozen years. At Columbus, as I recall it, it was so severe that they could hardly grow any tips at all, and I thought at the time that the raspberry would be exterminated. The raspberry seemed to give way all at once, but I have scarcely seen anything of the trouble since.

Secretary Farnsworth: Did spraying seem to be of any benefit?

Professor Selby: Spraying did not seem to be of any benefit at all. I, perhaps, ought to say one thing more in this connection. Professor Burrell, with Miss Detmers, worked on this disease for microbes; were inclined to refer it to the same microbe as that of pear blight.

Mr. Shirer: Mr. President, I would like to ask if there are any new raspberries better than the Haymaker and the Shaffer.

Mr. Scarff: The Columbian is better than the Shaffer.

Professor Green: I would say that the Haymaker and the Columbian are better than the Shaffer.

The Secretary: I would like to ask if anyone has tried the Cardinal, the new Kansas raspberry? I was a little amused last spring in corresponding with the originator of the Cardinal. He had a great deal to say about the merits of the Kansas fruit, and, chafing him, I replied that Kansas is pretty well settled up with Ohio men. He acknowledged the corn by saying that he was from Ohio. I have the Cardinal on trial. It is a very strong grower, and seems to be of the same type as the Haymaker. I think it is probably not of general market value.

Mr. Scarff: Do you have it growing at the Station, Professor Green?

Professor Green: Yes, sir.

Mr. Shirer: Is the Haymaker hardier than the Shaffer or the Columbian?

Mr. Pierce: Yes, very much so.

Mr. Whitney: I would like to inquire whether anybody has fruited the Rathbun blackberry, enough to form a judgment as to its value. I have a little bit of it, but not enough to predict anything.

Mr. Scarff: If no one else has anything to say about the Rathbun, I would like to say that it fruited with me this year for the first time on two-year-old bushes. The bushes were partially winter-killed; I do not think the variety is very hardy, but the berries were fully as large as any dewberry I ever saw. I do not think they would be prolific enough to be profitable from a market standpoint.

Mr. Whitney: My experience is not favorable at all.

The President: Let us now take up question number six, under "Things we want to know." How should peach trees be handled on rich soil to prevent an excessive growth of wood and foliage at the expense of fruit buds and sound, hardy wood?

Professor Green: I do not know just how you would get an excessive growth without cultivation. When the trees are young you cultivate a crop of potatoes or corn, and then sow oats or rye in the fall, or you can put it into sod. Now, I am inclined to think that on very rich soil that would be the best course to pursue. You certainly can not follow the ordinary course in peach culture. For my part I would rather not plant peach trees in such ground in the first place. That would be the way I would get out of it.

The Secretary: I know we have been cautioned against this, and yet we are told that Mr. Morrill's peach orchard is cultivated and fertilized very successfully. This is a question I put in largely for my own information, and the point is right here: I dislike very much to restrict anything by starvation or a lack of cultivation. I believe in good feeding, and if we can only succeed in any posible way in diverting the energies of that soil and that tree into the proper channel it will certainly produce an abundant crop of fine fruit. It does seem to me that at this age of the world we ought to have progressed far enough in the science of horticulture and agriculture to be able to direct these forces by some other means than by the starvation method. I do not like to grow inferior fruit, and when I have rich soil I like to use it to its full capacity and direct it. In other words, I do not like to tame down a spirited horse by the starvation process. I like to feed and direct the energies into the proper channel. Now, this may not be possible in the matter of the peach, but it seems to me that it can be done.

Professor Selby: Have you ever tried phosphoric acid?

The Secretary: I bought four tons this year and used it in several cases on my potatoes, and I got nearly as many potatoes where I used it as where I did not use it; but I believe that suggestion is a good one. If I were to use a commercial fertilizer, that would be my choice. This piece of ground that I have in mind now was in raspberries several years and mulched with manure once or twice. I plowed it last spring and turned under the clover sod and grew those potatoes which I have on exhibition here, one variety (Sir Walter Raleigh), running 350 bushels per acre, and the other (Whiton's Mammoth), 425. I have four acres of strawberries that will largely be dug up in the spring for plants, and the rest will be picked for fruit. Now, then, to get the most out of that ground, and get the greatest growth on the orchard, my plan is to plow the strawberries under as soon as picked and plant potatoes; but the late cultivation necessary for those potatoes will have a tendency to make the peaches grow rather late. I planted those peach trees there with some misgiving. The ground is pretty rich, and yet, as I say, I like to cultivate rich ground; and it seems to me that some way might be devised whereby the immense possibility of that ground might be fully developed.

A Gentleman: How about summer pruning?

The Secretary: That might answer, but the question comes in, would we not cause a later second growth that would be even more immature than without pruning? The trees we planted last spring have made an enormous growth.

Mr. Freeman: I have some experience with an orchard of 12,500 peach trees, and some of those trees are standing upon very rich soil. The difficulty of bringing trees up on rich soil, in my case, managed by sowing clover after the third year. When the clover grew up we moved it, and placed it around under the limbs about three feet from the tree. When those trees were five years old they produced a very good crop. I think it was the means of giving me a crop on those five-year-old trees. I had pruned them severely, cut back one-half each year from the time that they were planted until the fifth year, making a very low, heavy, dense top near the ground. On those trees that were old enough to bear I got remarkable results in this way, and I believe this can be done on any rich soil.

Mr. Sweet: Mr. Chairman, Secretary Farnsworth spoke about feeding the horses—that he likes to feed his horses well. Well, now, he would not expect to feed his horses as well when they were standing in the stable, and doing him no service, as he would if they were going to haul a big load every day. In my estimation the peaches will stand cultivation and fertilization much higher and later in the season where they are bearing fruit. That is my experience on my poor land, and I suppose it would be the same on rich land.

Professor Selby: The problem is evidently about this: He has a soil with an abundance of humus and nitrogenous material, as well as fairly fertile in other ways. Now, a tendency of this character will be to an excessive vegetative growth, and the difficulty will not be an easy one to meet unless it can be done by withdrawing the water from the soil by another crop planted with it. The principle is to put something else in there to cut down the water supply and reduce the vegetative growth. That is the effect of sodding. It cuts off the water supply. On the other hand, phosphoric acid in soils that are not rich would have the effect of increasing fruitfulness. There may be some success in a moderate fertilization with phosphoric acid, but one of the first effects would be to stimulate growth, rather than retard it. The effect would be earlier maturity of the wood. You will doubtless recall Professor Kedzie's remarks some years since along this same line, in which he pointed out certain Michigan peach growers who had orchards of some years' growth with such tendencies. One particular orchardist who was the pupil of Professor Kedzie recommended the use of phosphoric acid with very satisfactory results.

Mr. Shirer: I am trying an experiment along the same line, but our soil is not exactly overrich. It is all right for blackberries, though they produce too rank a growth, and the thought struck me that it might be that way with grapes. So I went to work and put the grapes eight feet apart and planted a row of asparagus between the rows of grapes. What the outcome will be I do not know. I came to the conclusion that the asparagus would withdraw enough water from the soil so that the grapes would have a healthy growth; and the thought also struck me that you could plant a couple of rows between your peaches, as Professor Selby says you want something that takes the moisture out.

Dr. Chamberlain: I suggest that we move on to some of the other questions on spraying.

The President: If you are through with this we will take up question number nine: "How may we improve our methods of spraying?"

Professor Selby: Last night I endeavored to present the idea represented by the slides that for the present, labor is too scarce and it is too difficult to get a man who will succeed in giving the proper amount of pressure with a hand pump. We have before us three types of machines: A gasoline engine power pump, the gasoline air compressor, and compressed air device, and the traction accumulation pressure device. Now, each one of these, it seems to me, has certain things in its favor. I think we must have some such plant as this to give us pressure for spraying for large orchard work. Now, then, I believe that that the gasoline engine has such general usefulness with the large orcharidsts that it is coming into general favor, and whether we should use the compressed air or the power spray pump, will depend somewhat upon our other circumstances. If we are experimenting, then these same tanks on the Loop plan, I believe, will be the best, but if we have large areas to spray speed is a consideration. The traction device may be made a success, but as yet I fear these devices are not on the market in such shape that we can be absolutely certain of the result. The cost is about the same in the Loop plan or the other, about $275. Mr. Loop reports his with the air compressor at $285. The air compressor could not be used for any other purposes unless we had other machinery with which the air compression would be usable. The competition in gasoline engines is so great that we can buy them away down, and, I believe, there is room for exercise of ingenuity by people who have wants in this line.

Mr. Shirer: What about the one-horse farmer? What is he going to use?

Professor Selby: If he has got the right kind of a hired man he can get along as he has been doing.

Mr. Pierce: How does this compression part work—from tree to tree or going along the road?

Professor Selby: The traction device works on a condensing chamber, and the theory is the accumulation of pressure in driving from tree to tree. It might be said that you would have to drive about awhile. I think we will have to have larger chambers and drive around until we get up pressure.

Mr. Freeman: Mr. President, there are some difficulties attending the large orchardist in making application of this machinery. Most orchards are planted on rough ground. It would be almost impossible for us in our orchard to use a machine of that kind, therefore we use a force pump on a sled. It is a difficult matter for us to get along who have trees that are above us in part. We had some experience last spring. Desiring to use a barrel of whale oil soap upon our pears, 2,000 trees, we placed the barrel upon the sled and then two men stood on the sled and one drove the horse and used the nozzle. It was a success, and we put about 525 pounds of whale oil on 300 trees. It made the trees look beautiful during the summer and we had an immense crop of pears. Now, many persons may ask as to the expense of the material and making the application. Our barrel of material costs us, delivered at the orchard in Brown County, Indiana, $15, 525 pounds, and the application was $10, making the total $25. The old saying is that "an ounce of prevention is as good as a pound of cure." We thought that if there was any scale in the neighborhood that spraying our trees would prevent the spread of it. I am glad we made the application from the remarks that have been made today upon the subject of the San Jose scale. We hope that we may be able to keep the scale from getting among our pear trees.

While on this subject, I should like to ask if anyone of the professors can give a remedy for the black bark beetle, the most destructive little insect we have in our orchards. I should like to hear from some of them on this subject if they know of a remedy. We have had as high as 15 or 20 trees in a cluster killed out within a very few weeks of each other, by the black bark beetle.

Mr. Sweet: Do they bore little holes into the trees?

Mr. Freeman: Yes sir.

Mr. Scarff: Can you answer that, Mr. Sweet?

Mr. Sweet: No, I cannot answer that, but I think I have a better way of spraying than to use a sled, if he can get around. I bought one of those vineyard wagons, broad, low wheels and you can drive anywhere with it. You can drive up one row of the vineyard and come down the next; and on top of that is a rack, and my spraying pump is on top of the rack. I built a platform to walk around on, and I can stand on that and get up a good deal higher than I can on a sled. One man can handle the force for spraying with two nozzles with ease, and it is much easier than the old Field force pump; and by being up on this scaffold, eight feet from the ground, it helps to get up into the top of the tree. I want to ask Mr. Freeman how many pounds of whale oil soap he used to 50 gallons. I want to say that we used nine or ten pounds to 50 gallons on our trees.

Mr. Freeman: We usually aim to use one pound of whale oil soap to a gallon of water. Our trees were probably two and one-half or three inches in diameter. I will say that I agree with the gentlemen in regard to spraying on level land. That is the way I treat my apple trees within nine miles of here—put a hayrigging on the wagon and put a cover on top of that, but our peach and pear orchard is on a hill 400 feet above a creek a half mile away, and it has a slope 100 feet for 300 feet distance, up and down. I will say something that may interest some of the peach growers here, and that is that we find the Smock upon the slope to the south ripen two weeks before those on top of the hill. Then we have a northern slope and have the same results there. At the foot of the hill 100 feet lower than the top of the hill, the peaches ripen two weeks before the peaches on top of the hill. It rather surprised us, because we thought it would be the other way.

The President: We will take up question number seven: "Are any of the newer peaches of special value?"

Mr. Owen: Mr. President, I do not know of any really new peaches of any special merit that have come to us in the past year or so. There is one peach that I think considerable of that is coming into prominence now in our district, and that is the Captain Ede of the Elberta type, and ripening just before, but not sufficiently in advance of that peach to make it of much more value than the Elberta. It ripens only three or four days before the Elberta. I have been thinking very favorably of the Emma peach, but since coming here I have been told that the results are different in producing this peach in the South. I would like to hear from those who have fruited it and know more about it.

Mr. Albaugh: The Captain Ede peach is not a new peach. I budded it in my nursery 20 years ago. It has a local reputation and name in southern Illinois, and not transacting very much business in that section of the country at that time, we did not have enough demand for it to continue the propagation of it. It is undoubtedly a good peach, but I merely say it is not a new peach. I got the buds originally from the originator 20 years ago. I saw considerable of the Emma peach in the south this year in one orchard that I passed almost daily, within a half mile of the orchard at which I was stationed. There were 20 rows or more of the Emma that were almost absolutely fruitless while the other varieties all around were full of fruit. There was a prominent southern grower, five miles from us, who said he had a tremendous crop of the Emma peaches, thought he would have 30 carloads and he wanted to know if we could let him have some of our pickers to help him out. We let our pickers off, but they came back the next day and said that the Emma had proved a failure, that they had not two carloads. I would be loath to plant heavily of the Emma from what I have seen of it. There are a number of new peaches among which are the Carman that have been grown down in the south. I saw some of this variety this year. It is a good-sized peach, white flesh and clings. It is an early peach. There are a great many peaches that are put into the catalouges that are talked about for a year or two and then they vanish into thin air. As soon as they are tried they fail. Some of you remember that in the high-toned magazines, including the Century Magazine, that a great and "Wonderful" peach, which was wonderful only in the push that the advertiser gave it, was advertised everywhere; advertised the peach trees sent by mail for $1. We planted 1,000 of them in the south and they were a wonderful disappointment to us. They didn't produce anything.

Of the newer peaches today, the Elberta is really among the newer peaches. While the orginal tree was within five miles of our orchard in Georgia and I am told 32 years old, its distribution among the nurseries has not been many years, probably not over 10 years, and its general distribution only five or six years. I would say that among the new peaches we have a right to class the Elberta because we are just getting it into bearing over the different parts of the country. So we can say that we have one new peach at least that has gained and is gaining general favor all over the country.

J. W. McNeil, Kirkwood, Ohio: How about the Diamond, Mr. Albaugh?

Mr. Albaugh: That is like asking a man about his own wife. (Laughter.) Mr. Irving, of Rochester, N. Y., took dinner at my house lately, and I told my wife to have some Diamond peaches for dessert at dinner and when he ate the two big halves that filled the saucer he said: "Well, I think that is the finest free stone peach I ever saw; I think it almost equals your famous Diamond." My wife says, "That is the Diamond," and then he said he believed he would try two more halves. (Laughter.) We are succeeding with it, in fact, can't get enough of it. That is all I know about it. It is of the cling species, but it will come off of the stone easily. In the Pittsburg and Boston markets we get more for the Diamond than for any other peach.

Mr. Sweet: Isn't the Crosby a new one?

Mr. Albaugh: The Crosby is comparatively new. It does better here than in the south. It is not so large that it attracts attenion; it has a good flavor, and is a hardy peach. We cannot use it in the south. It does not get big enough.

Dr. Chamberlain: We didn't know that Brother Albaugh was loaded to the muzzle or we would not have fired him off on the Diamond.

Mr. Albaugh: It is your own fault.

Mr. Miller: Mr. Chairman, in our commercial fruit growing, we do not aim to spend a great deal of time in testing new varieties. I have a few of what we call the newer varieties, though they might not be called new by some of you. I had a few of the Triumph this year for the first time. It ripened with the Early Rivers in our section, but like all early varieties of apples, peaches, pears, plums and cherries, we have but little use for them in a commercial way and they will never pay unless we have a larger home market than we now have. None of them are profitable shippers. The Triumph with us ripened very unevenly. Some of them are fine looking peaches, but most of them very inferior. I have 500 of the Emma which fruited this year for the first time. I would hesitate to recommend it to the commercial grower, yet I was pleased with its appearance this year. Of course, we cannot judge of the value from the first crop, and a small one at that. I have hopes that it will do well. It ripened about 10 days after the Elberta. The Kalamazoo we consider one of the newer varieties. It is of good quality, a fair grower, a good bearer, but ripens with the Elberta when we have no need of a better market peach. I had also a few of the Fitzgerald, but not enough to form an opinion from as to its merits. The Lady Ingold is one which has not been grow in our section. We had a few of these this year, and I was very much pleased with the appearance of them. I fear that it will not be productive enough to be valuable for market. Its time of ripening is a good one for our market, perhaps 10 days earlier than the Elberta, when we have no real good yellow peach in the market. It appears to be of the early Crawford type, but I am afraid it will not be productive enough.

The President: We will now listen to the report of the Treasurer.

REPORT OF TREASURER.

NICHOLAS OHMER, TREASURER.

1899. In Account with Ohio State Horticultural Society. Dr.

Date.	To Whom Paid.	Vouchers	Amount.
Dec. 8	L. B. Pierce, for services rendered	1	$13.40
8	F. E. Carr, “ “	2	13.00
8	W. G. Farnsworth, “ “	3	14.40
8	C. L. Whitney, “ “	4	12.00
8	E. H. Cushman, “ “	5	18.80
8	A. D. Selby, “ “	6	13.10
8	W. R. Lazenby, “ “	7	6.50
8	J. J. Harrison, “ “	8	18.10
8	E. M. Woodard, “ “	9	14.50
8	W. H. Owen, “ “	10	15.55
8	A. Shirer, “ “	11	11.35
8	F. M. Webster, “ “	12	11.20
8	W. N. Scarff, “ “	13	9.75
8	E. G. Cox, “ “	14	16.00
8	N. H. Albaugh, “ “	15	12.15
8	N. Ohmer, “ “	16	12.00
8	M. E. Sweet, Prem. on Fruit Ex.	17	4.50
8	C. W. Counter, “ “	17	9.00
8	C. W. Montgomery, “	17	3.00
8	E. G. Cox, “ “	17	.50
8	T. Kislingbury, “ “	17	2.50
8	F. H. Ballou, “ “	17	2.00
8	F. P. Vergon, “ “	17	2.00
8	T. A. Johnson, “ “	17	19.50
8	John Imlay, “ “	17	8.00
8	A. D. Seward, “ “	17	6.00
8	Gatton Bros., “ “	17	2.00
8	J. C. Streeper, “ “	17	.50
8	J. C. Bear, “ “	17	1.00
8	E. M. Woodard, “ “	17	18.00
8	W. W. Farnsworth, “	17	101.00
8	Dr. Georgia Merriam, “	17	17.60
8	Shirry & Wilson, “	17	5.50
8	S. R. Moore, “ “	17	5.75
8	W. W. Farnsworth, “	17	18.75
1900.			
Jan. 11	W. H. Hartsouth, “ “	18	63.50
Feb. 6	F. M. Webster, “ “	19	31.10
Mar. 3	J. J. Harrison, “ “	20	33.06
Mar. 27	W. W. Farnsworth, “	21	145.62
Apr. 9	Clapper Printing Co., “	22	100.00
Apr. 25	W. H. Owen, “ “	23	54.53
Apr. 25	W. W. Farnsworth, “	24	29.82
Apr. 27	Clapper Printing Co., “	25	89.12
June 26	W. W. Farnsworth, “	26	81.10
Sept. 11	W. W. Farnsworth, “	27	84.50
			$1151.15

NICHOLAS OHMER, TREASURER.

1899.	In Account with Ohio State Horticultural Society.	Cr.
Dec. 8.	Balance on hand	$753 94
Dec. 15.	Warrant on State Treasury	72 10
1900.		
Apr. 22.	Received from Secretary, membership fees	110 00
Apr. 27.	Warrant on State Treasury	733 68
June 26.	Warrant on State Treasury	254 57
	Total receipts	$1,930 29
	Total paid out	1,151 15
	Balance on hand	$779 14
	Balance due us in State Treasury	11 75

TROY, OHIO, December 6, 1900.

Mr. President and Members of State Horticultural Society:

We, the undersigned committee to audit the treasurer's books, find them correct as read by our treasurer.

W. G. FARNSWORTH,
E. M. WOODARD,
W. R. LAZENBY,
Committee.

The President: I will appoint as an auditing committee, to audit the books of the treasurer, Mr. W. G. Farnsworth, Mr. Woodard and Professor Lazenby. We will now listen to the report of the Secretary.

SECRETARY'S REPORT.

The past season has been a reasonably prosperous one, both for the horticulturist and for the society.

The past year saw the finish of the official work of the society in creating an organization for the control of insect and fungus pests in our state.

I might say in passing that the existence of similar organizations in other states is largely due to the efforts of our society, which can truly be said to be the pioneer in the work.

We must, however, still continue to aid the commission by every means in our power.

For many years it seemed difficult to arouse much enthusiasm in our society in regard to the ornamental branch of our society, but I am happy to be able to report a marked change in this respect.

This society has a great mission to perform, not only to place fresh fruits within the reach of the millions, but to create an appreciation of, and love for, the beauties of Nature in the way of trees, shrubs, flowers and grass.

More than this, perhaps, we should strive to teach the busy tiller of the soil how he may surround the loved ones committed to his care, with the beauties of Nature, that they may enjoy their elevating and ennobling effect.

We must try to do this, first by impressing upon their minds the advantages of this work, and secondly, we must show them how to accomplish this by the easiest and simplest means possible, that they may be able to do so without overtaxing themselves physically, or neglecting that mortgage which they are trying to wipe out, or without using that nest egg in the banks which they have laid by for a rainy day or for the children's education.

Teach them that ability in ornamenting the home consists largely in appreciating, appropriating and reproducing the happiest effects of nature.

I trust that if our society decides to make an exhibit at Buffalo, it will put more time and money into it than into our Paris exhibit.

This brings up the question of finance. My experience in our State House last winter, in connection with the scale bill, and in securing our appropriation, convinced me that if our society earned more money, and needed more money, and "went after it," to use a slang phrase, that we could secure the necessary funds.

W. W. Farnsworth.

On motion, the report of the Secretary was adopted.

The President: Are there more committees to report at this time?

Mr. Pierce: I am ready to make the report of the Committee on Flowers.

REPORT ON FLOWERS.

L. A. Thomas & Son made one of the finest exhibits of flowers and plants ever staged at an annual meeting of this society, and are entitled to first premiums as follows:

Display of Carnations, Roses, Cut Flowers and of Decorative Plants.

The collection of Crotons is especially fine and larger than it is usual to see in small cities.

L. B. Pierce,
A. Shirer,
Committee.

On motion, the report of the committee was adopted and placed on file.

The President: We will now listen to the report of the Committee on Fruit.

REPORT ON VEGETABLES.

We, your committee, have made the following awards:

Best Collection of Potatoes—C. W. Montgomery, first premium; E. M. Woodard, second premium.

Best Display of Vegetables—E. M. Woodard, first premium.

M. M. Miessie, of the Grand Rapids Society, exhibited some fine specimens of greenhouse lettuce.

W. W. Farnsworth has on exhibition a plate each of Whiton's Mammoth and

Sir Walter Raleigh potatoes, which are quite fine in appearance, and we believe they will be profitable to raise.

Mr. W. H. Lentz exhibits a basket of potatoes labeled Piqua Chief. They are very large, but irregular in shape. Some of the specimens bear a close resemblance to the Seneca Beauty.

R. J. Tussing,
H. H. Aultfather,
W. R. Lazenby,
Committee.

Professor Lazenby: The committee appointed to consider the recommendations made in the President's address, respectfully submit the following report.

REPORT ON PRESIDENT'S ADDRESS.

BY PROF. LAZENBY.

Your committee appointed to consider the recommendations made in the president's address, respectfully submit the following report:

First—We recommend that a committee of three be appointed by the president, whose duty it shall be to secure an increased appropriation for the Society, and also to secure for the headquarters of the Society a room in the State Capitol.

Second—We further recommend that the present Committee on Legislation be continued, and that said committee be instructed to closely look after appropriate state and national legislation on the subject of insect control, and the prevention and spread of contagious plant diseases.

Third—We recommend that the Board of Control of the Experiment Station be urged to secure an assistant in the division of horticulture, so that the work done by that department may be strengthened and extended as rapidly as the means at hand will justify.

Fourth—It is also recommended that the Experiment Station exhibits of varieties of fruit be given better recognition at our State Fair, in the way of suitable space and other facilities, so that these important collections may be of more educational value to the public; and we ask the State Board of Agriculture to grant this request.

Fifth—We insist that this Society and the horticultural interests of the state shall have better representation in the State Board of Agriculture, so that the horticultural exhibits at the State Fair may be increased in number and variety, and may be better displayed.

To this end we recommend that this Society name a suitable candidate for membership on the State Board of Agriculture, and do all in its power to secure his election.

E. M. Woodard,
R. H. Warder,
William R. Lazenby,
J. J. Harrison,
J. C. Bear,

Dr. Chamberlain: I move that the report of the committee on President's address be adopted as the sense of this Society, and given due publicity.

Motion carried unanimously.

The President: The next thing in order will be the election of officers. I will appoint Mr. Ballou and Mr. W. G. Farnsworth to act as tellers.

And, thereupon, by due process, as provided by the constitution, the following officers were chosen for the ensuing year:

William Miller, President.

W. N. Scarff, Vice President.

W. W. Farnsworth, Secretary.

N. Ohmer, Treasurer.

The following gentlemen were chosen as ad interim committeemen for the coming year:

First District: W. G. Farnsworth.

Second District: Isaac Freeman.

Third District: J. C. Bear.

Fourth District: T. S. Johnson.

Fifth District: F. H. Ballou.

Sixth District: E. G. Cox.

Seventh District: M. E. Sweet.

Eighth District: H. H. Aultfather.

Ninth District: E. H. Brawley.

Tenth District: C. L. Whitney.

The President: Now, in pursuance of the spirit of the committee's report on the President's address, it seems to me that this would be the proper time to determine upon a man whom we would like to have in the State Board of Agriculture.

Dr. Chamberlain: I would like to nominate a gentleman, Mr. President, for that position, and I ask the privilege from my knowledge of the fact that the northern portion of the state is not well represented on that Board, and from my knowledge of the fact that more than all things else is needed a good horticulturist, and from my knowledge of the fact that before his election to the Presidency of this Society, Mr. Miller was in the minds of all for this place. Therefore, in view of all these considerations, I nominate Mr. William Miller.

Mr. Aultfather: There is one line in the constitution of our Society which I think should be stricken out, and I move you that the line compelling the President of this Society to select his executive committee from the ad interim committee be stricken out, and that he be allowed to select the men that he thinks more capable and competent to fill that position.

Motion carried unanimously.

The President: The next thing in order will be the selection of a place of meeting for next year.

Two invitations were received by the Society for the meeting next year, one from Clyde and the other from Lancaster. Lancaster, by a majority vote, was decided upon as the place of holding the convention.

And, thereupon, the convention recessed until 7:30 p. m.

EVENING SESSION—Thursday, December 6, 1900.

Pursuant to adjournment, the President called the convention to order at 7:30 p. m., and announced that the Association would first listen to instrumental music, after which the Committee on the Fruit Exhibit made its report, through the chairman, Mr. W. G. Farnsworth.

REPORT OF MR. FARNSWORTH.

M. E. Sweet—	
Best plate dessert apples—first premium	$1 00
Best plate Market N. Ohio—first premium	1 00
Best plate Baldwin—second premium	50
Best plate Northern Spy—second premium	50
Best plate G. Golden—first premium	1 00
Best plate R. Canada—first premium	1 00
Best plate Belmont—second premium	50
Best plate Peck's Pleasant—first premium	1 00
Best plate R. I. Greening—first premium	1 00
Best plate Rome Beauty—first premium	1 00
Total	$8 50
Isaac Freeman—	
Best plate pears; Market—first premium	1 00
Best display pears—second premium	3 00
Best plate Market apples; S. Ohio—second premium	50
Total	$4 50
T. S. Johnson—	
Best plate Peck's Pleasant—second premium	$ 50
Best Plate Rox Russett—first premium	1 00
Best collection of varieties of apples—second premium	5 00
Total	$6 50
W. H. Lentz—	
Plate grapes—second premium	$ 50
Display grapes—second premium	3 00
Total	$3 50

W. W. Farnsworth—

Belmont—first premium	$1 00
Plate Jonathan—first premium	1 00
Plate Weaver Sweet—second premium	50
Plate Stark—first premium	1 00
Plate Dessert—second premium	50
Collection of apples—first premium	8 00
Plate Anjou pears—first premium	1 00
Plate Lawrence—first premium	1 00
Plate Keiffer—second premium	50
Display pears—first premium	5 00
Total	$20 00

E. N. Woodard—

Plate Northern Spy—first premium	1 00
Plate Red Canada—second premium	50
Plate Keiffer—first premium	1 00
Plate Duchess—first premium	1 00
Plate variety; Market—second premium	50
Plate grapes; dessert—first premium	1 00
Display grapes—first premium	5 00
Total	$10 00

E. G. Cox—

Plate Rome Beauty—second premium	$ 50
Plate Ben Davis—first premium	1 00
Plate Market S. Ohio	1 00
Total	2 50

H. H. Aultfather—

Plate Baldwin—first premium	$1 00
Plate Weaver Sweet—first premium	1 00
Plate Rambo—first premium	1 00
Total	$3 00

L. B. Pierce—

Plate Jonathan—second premium	$ 50
Total	$ 50

Gatton Bros.—

Plate Grimes' Golden—second premium	$ 50
Plate Rambo—second premium	50
Plate R. I. Greening—second premium	50
Plate Stark—second premium	50
Plate Wine Sap—second premium	50
Plate variety Market N. Ohio—second premium	50
Total	$3 00

J. C. Bear—

Plate York Imperial—second premium	$ 50
Total	$ 50

John Pearce—

Plate Lawrence pears—second premium	$ 50
Total	$ 50

U. T. Cox—

Plate Ben Davis—second premium	$ 50
Plate York Imperial—first premium	1 00
Plate Wine Sap—first premium	1 00
Total	$2 50

Your committee also find upon the tables for exhibition only, a fine collection of 40 varieties of apples shown by Prof W. J. Green, of the Experiment Station. The samples are mostly very fine and show several of the newer varieties.

We also find a beautiful display of fruits from California consisting of four plates of raisins, one of English walnuts, one of soft shell almonds, one of dried figs, one box of raisins, two plates of nectarines, two plates of dried peaches, two Japan persimmons, and two pomegranate, all of which are very fine, and shown by Wm. Johnson.

Also a Smith cider apple of 1899 crop shown by Olive Cress, and a box of sweet potatoes of 1899 crop, shown by Mr. D. Young.

Two samples of the grape fruit were shown by Mr. Thomas, which were fine, though infested with a scale.

Mr. E. M. Breechley shows a plate of the Greenville apples that are smooth and in good condition, and seem very promising.

Mr. J. W. McNary shows a plate of the Opalescent, which are a large showy apple, and takes a high polish; also a plate of the Lankford, shown by Mr. F. H. Ballou, which resemble the York Imperial in appearance and are of good quality.

W. G. Farnsworth,
J. J. Harrison,
Cary W. Montgomery,
Committee.

On motion the report was adopted.

The President: I wish to state that it has been thought by the Secretary and myself and quite a number of the members that we can finish the business of the 34th annual convention this evening. Now, unless there is something contrary to that end, I shall conduct the business with the prospect of closing the session this evening. We will now listen to the report of the Committee on the State Fair Premium List for Vegetables and Flowers.

Mr. Montgomery: The chairman has requested that I read the recommendations, or the changes that we recommend in the premium list, if you desire. We have made changes in the list of potatoes and amateur flowers.

We recommend the following varieties of potatoes: American Wonder, Early Ohio, Bliss Triumph, Beauty of Hebron, Bovee, Irish Cobbler, Early Wisconsin, Early Norther, Early Trumbull, Early Thoroughbred, Burr No. 1, Carmen No. 3, Uncle Sam, Seneca Beauty, Livingston, Sir William, Enormous, Green Mountain, Whitons Mammoth and Pingree.

And I wanted to ask Professor Green about the Adirondack, if he could recommend that potato. We want to get some new varieties, but do not want a variety that has not been sufficiently tested, and I have not been able to see Professor Green since we came in.

Then in the amateur list of flowers we would recommend adding to Book 64, a display of Phlox, $2 and $1; and a display of Nasturtiums, $2 and $1. Those are the only changes that we recommend, unless Mr. Pierce has something to recommend.

Mr. Pierce: I have served on three committees here and have not had time to give to this matter. We waited until yesterday for Mr. Carr to come. Mr. Montgomery and I wish to express a wish that the State Board of Agriculture would take more pains to get up a larger show of vegetables under their proper names and do something about the flower exhibit on a State Fair basis. It is about on a county fair basis now, with a great deal of "if" about that. There ought to be something done in the matter of staging the plants, and there ought to be a superintendent there, appointed months before to work up a show of that kind. It is a shame that there should not be a better show at the State Fair in a matter of this kind.

The President: You have heard the report of the committee; what shall be done with it?

Dr. Chamberlain: I move that it be adopted as the recommendation of this Society.

Professor Selby: Does that motion carry with it that it is to be transmitted by the Secretary?

The President: I suppose it does.

(Thereupon, the report of the committee was adopted.)

Mr. Pierce: I move that it is the sense of this Society that but one premuim reward should be made to any one county for a display of fruits.

Dr. Chamberlain: That is, that not more than one display from any one county be given an award?

Mr. Pierce: Yes sir.

(Thereupon, the motion prevailed unanimously.)

The Secretary: Mr. Chairman, I have here a communication from the Secretary of the American Pomological Society, which I would like to read:

Washington, Dec. 1, 1900.

Mr. W. W. Farnsworth, Secretary Ohio State Horticultural Society, Waterville, Ohio.

My Dear Sir:—The next biennial meeting of the American Pomological society will be held during the autumn of 1901. While the exact time and place have not yet been decided, it will probably be held late in August or early in September at Niagara Falls or Buffalo, New York. It is expected that both these points will soon be decided by the executive committee and duly announced through the press.

As low transportation rates are assured by reason of the Pan-American Exposition at Buffalo, it is expected that the attendance will be large and representative of the horticulture of the country. It is desired by the officers and executive committee that the session shall be truly national in character and that all sections of the country shall be represented both by delegates and speakers upon the program.

It is therefore suggested that your society consider the matter of appointing delegates at your coming annual meeting and arrange to have as large a representation as possible in attendance. If there are questions of special interest to the horticulturists of your state that should be discussed at the coming meeting, the executive committee will appreciate suggestions from your society regarding them at an early date, and will consider them in arranging the program. Horticulturists everywhere are benefited by the closer acquaintance and union which such meetings as this make possible, and it is believed that great good will result therefrom.

It is also suggested that your members prepare to exhibit their new fruits of special merit at the meeting, as the biennial award of Wilder medals by the society will occur at that time. In case the session shall be held at Buffalo, the fruit exhibit will probably be held in connection with the horticultural display at the Exposition, thus affording an exceptional opportunity to exhibitors.

I will appreciate the favor if you will advise me at an early date of such action as your society may take in the matter, as the program of the meeting is being made up for announcement in the near future.

Very truly,
Wm. A. Taylor, Secretary.

The President: What shall be done with this communication?

(On motion, it was referred to the executive committee for such action as they might deem wise to take under the powers granted it.)

The President: Is there any other unfinished business? We will now listen to the report of the Committee on Final Resolutions.

REPORT OF COMMITTEE ON RESOLUTIONS.

Mr. President: Your committee on resolutions beg leave to report the following resolutions and recommend their adoption:

First—That this society tender its hearty thanks to the Board of Control and staff of the Ohio Experiment Station for their cordial and effective cooperation in securing measures and means for the control of insect and fungus pests, and that we pledge to them our support in the prosecution of their labors.

Second—That we commend the general work of the Station in solving needed problems along all the lines of agriculture, horticulture and the animal industries; and we desire to see each department enlarged and strengthened, and should deplore anything that should in any way interrupt the past and present wise and well-balanced continuity of work along all these lines.

Third—That we rejoice in the steady and healthy growth of the agricultural work and instruction at our state university, and the healthy growth of the agricultural and industrial spirit among the trustees, the professors and the students.

Fourth—That we urge the division of pomology and of vegetable pathology in the United States Department of Agriculture, to make careful examination of bitter rot in apples, of scald and other troubles in the cold storage of apples, and the questions of proper picking, grading, packing, storing and shipping of apples with a view to securing better and more uniform prices to the growers.

Fifth—That we extend our thanks to the horticulturists of Miami county for their kindness and hospitality; to the representatives of our State Experiment Station for their valuable and interesting papers; Prof. Lazenby as a representative of our state university; to Mr. Shankland, of the National Cash Register Co., of Dayton; to the various members of our own society who have responded by preparing papers on subjects assigned; to the ladies who have enlivened each session with excellent music, and to all who have participated in making the society's annual meeting a success.

Respectfully submitted,
L. B. Pierce,
W. I. Chamberlain,
F. H. Ballou,
Committee.

And, thereupon, on motion, the report of the Committee on Resolutions was adopted.

The President: Now, gentlemen, there are other questions here under "Things we want to know," that have not been taken up. If anyone wants to bring up anyone of these questions we will consider it briefly: if not, we will go to the regular program of the evening.

The Secretary: I will try to secure answers to the other questions on the list, and insert them in the report.

"What are the best crops for young orchards and berry patches?"—Answer to question No. 8.

We began fruit growing from the ground up. That is, we started without experience and without capital. So, from the very start we had to make the business self-supporting.

We could not expect immediate returns from our trees and plants, and wishing to utilize all the ground and get the most from it possible, in order to meet our rents and labor bills, we began studying what we could best use between the rows of trees and berries.

We began our business in 1887. At that time Marrowfat beans were selling at $2.00 to $2.50 per bushel in our markets, at wholesale.

The first year after we had everything planted and well-cultivated, we planted about June 10th, every bit of available ground between rows and plants, to beans. Our neighbors naturally expected to find us in the soup, "but they were mistaken." We planted between each hill of raspberries, blackberries, currants and other small fruits, a hill of beans with a hand corn planter. We call them "jabbers," and between each six feet row we used a one-horse seed drill to plant them, and between the eight feet rows of grapes we ran two rows of beans. We worked them with plant cultivators several times, and harvested about September 10th by pulling stalk and all and allowing them to dry a day or so in the field, then hauled to the barn and tramped them on the barn floor with horses. We grew 15 to 20 bushels per acre. In a few years the market became very dull. We then substituted for the bean crop, the potato. Planting between hills and rows the same as the bean. The potato has given us very good returns and is a very satisfactory crop to raise to fill up the ground. We live in a tobacco growing district, and we have several times grown in a newly planted currant, gooseberry or blackberry plantation, tobacco, planting between each hill and each row, securing from 75 to 90 percent of a full crop. We have tried planting corn, but do not like this crop so well, as it seems to sap the ground more than the other crops mentioned, and it is also very difficult to gather corn planted in this way and the stalks are in the way of the cultivator next year.

The orchard we must treat separately, as it is a secondary matter with us. We believe, contrary to the general opinion, that trees are a benefit to our small fruit plantations. We therefore plant among most of our small fruits, fruit trees at the time the other stock is planted. We do not think best to plant too thickly with trees, usually 30 to 40 feet apart each way. In partial shade we find anthracnose less likely to attack our plants. We think the trees check the drying winds and thus we hold the rainfall longer, even after deducting the amount consumed by the trees themselves. They are also a protection in winter from cold winds and act as a mulch in holding frost in the ground in warm days of winter and cold nights when so much damage is done by this continued thawing and freezing. And they are beyond doubt a great help in guarding against late spring frosts when our plants are in bloom. We admit all the points advanced against planting trees among small fruits. We are aware they take up a large amount of moisture, they are gross feeders and take fertility; they are in the way some in cultivation, but then when put in the balance we find the good points so far outweigh the bad that we shall continue the practice as long as we get the results we now do.

This method gives us quite a variety of crops in the same field, as we often have potatoes, beans or tobacco, small fruits and fruit trees occupying the ground at the same time.

We do not pretend to say our methods are best. We succeed in doing it this way: We are far from market. We can not, and do not want to grow anything on a small scale or that requires peddling. Owing to our market facilities we must grow crops that at maturity we can load a heavy two-horse wagon, send it to market to our selling agent, dump it all at one place, have our drivers take a receipt, so we can go to the city ourselves once a week and get a check for our week's delivery, and this we can do with any of the crops we use as fillers.

The President: We will now listen to a paper by Mr. S. Frank Duncan on "Country Life Made Attractive."

LIFE ON THE FARM MADE ATTRACTIVE.

There is a great deal more in this life besides cabbage heads, big crops of berries, and fine fields of grain. While these are very agreeable and fine to look at and to produce, they will not essentially bring happiness, in fact they may mean to some of us a great deal of unhappiness; here the young lady or gentleman of the farmer's household is referred to. Under this subject there comes the ever vexatious question—how are to we to keep the boy or girl on the farm?

The time was when so few advantages were known in the way of education and social life that the farmer boy could be led to believe in the farm life with all its solitariness and humdrumness, but today things have changed; the telephone and daily paper have done it all. By these means the young people of the farmer's household learn what their city friends are doing and the attractions going on therein for their amusement, and the country boy or girl has a natural tendency to join them in their social attractions and amusements. Happily, many changes have taken place for the country cousins, both young and old, in the past few years. The farmer's family may, if it will, put on a very presentable appearance, and not be dubbed old hayseed and other nicknames not so very creditable to them. But this portion of the subject need hardly be discussed further, and we will go back on to the farm and its life and see what may be found there in the way of making it more attractive, so that the young people may be proud in saying this is our home, the place they ought to cherish most of all in this world. The laying out or platting of lawns, gardens, and even the position of the farm buildings themselves should receive serious thought, in order to make a harmonious whole. The cultivation of flowers and shrubbery on the lawn has almost become universal. We will venture to say that there is hardly a boy or girl at the present time who can not tell you something about the culture of some flower or shrub, when only a few years ago such things were supposed to belong only to the women of the family. Every farmer should have a generous lawn. He can then display a great deal of individual taste, even if it be nothing but a clean, smoothly-shaven lawn. The use of the lawn mower and paint have become almost universal on the farm; even the renter is hardly known to be without his lawn mower; the price has diminished so much on this class of articles that there is hardly any excuse for every farmer to own one, and who does not admire a neatly kept lawn. It adds much to the place, while it gives a great deal of credit to the renter; the landlord soon concludes that this is the man for him, not only because of his neat farming, but of his tidy home surroundings. As to paint there is more of it used, judging from appearances, by the farmer, than ever before, the old weatherbeaten farm house and barn becoming more and more a thing of the past. It is not only a preserver, but a great beautifier if a little taste and judgment be used in its application. Beds of tulips should emblazon the lawn in early spring, while beds of annuals and bedding plants may take the place later on. A better plan is coming into vogue which is really nothing more than the old-fashioned flower garden of our grandmother's day revived, where honeysuckle and hollyhock run riot. But the present day gives us many new flowers—so that a garden of that kind may now contain a hundred varieties where fifteen or twenty were thought ample in display. In fact the numbers of bedding and herbaceous plants of that time were limited. A garden of this kind is more easily taken care of than where the plants and shrubbery are dispersed about the lawn in every direction, necessitating the cutting of sods and grass about them, and flowers *en masse* show off to a much better advantage than when planted singly. Take a bed of peonies, a long rectangular one, and how beautiful they look some bright morning in June when they are just dipped in the dewdrops. How they sparkle and glisten; it makes one almost wish they could see them just now, to even think of them with all their shades of pink, ranging from red to buff and white —great buffet balls, how sweetly and delicious fragrant you are! Surely the farmers can have some of these to make his home bright and attractive. Pea vines— there are more than a hundred varieties—what a host to select from—and if set in rich, well-manured soil, will improve in size and beauty each year. Next ought to be a bed of roses where a clay soil, well enriched in a sunny situation, is to be had. We would have a hundred tulips to a single bud, and of peonies fifty would not be too many. The best roses are Paul Neyron, Gen. "Jack," John Hopper, Jean Seilbaud, Jules Margotten, Baron Bonstellen, and about a dozen others. The Ramblers are very beautiful, but very unhappily, they do not bloom but once, while most of the other varieties bloom all summer.

The extensive planting of herbaceous plants can not be too greatly encouraged. There being no other plants that give so much satisfaction—they take very little care during the winter season, a good mulchting in the late fall being all that is necessary, with some sort of a light covering that will not pack and cause the plants to damp off or mildew. One of the best mulches for beds of any kind is sheep manure—it contains such a quantity of nutriment without great bulk. Sheep droppings are one of the best mulches for a lawn, as they can be so evenly spread, and can be left there, not requiring the raking and cleaning off of litter that other manures generally contain. Thus it will be seen that a great many little things may be done about the farm home to make it more attractive for the young.

The following beautiful lines by Margaret E. Sangster seem to come nearer to the hearts of most of us than any thoughts or suggestions which we have set forth in this paper. They are as follows:

We love them very dearly, the old familiar places,
The road where every turn we know, the trees that o'er it bend;
The meadow grasses waving, and the little flower faces,
And the lifted hills benignant, each one a steadfast friend.

We love the soft and springy sod, oft as our footsteps press it;
The little wayside briars that reach their clinging fingers out;
The lowly nest half-hidden in the dusky hedge—God bless it!
And all the common things that gird the common day about.

There's one wide branching maple that was tall when we were tending
The baby lambs beneath it in the years of long ago.
There's one great shadowy oak that stood, its friendly shelter lending
To our parents, when they courted, its tenting shade below.

The trees, the hills, the pastures, the lanes we oft have trodden,
Of us they are a part, our blood has caught a thrill from them.
We may walk today in purple, where once we walked in hodden,
But the self-same soul is in us; we are theirs in root and stem.

We love them very dearly, the old familiar places;
In Heaven I think the road will wear a look like ours at home;
The fields of living green recall the pleasant, beckoning faces
Of the meadow lands that hold us fast, how far soe'er we roam.

The President: We will next listen to a paper by Mr. L. B. Pierce on "Echos From the Florists' Convention."

ECHOES OF THE FLORISTS' CONVENTION.

The Society of American Florists has 715 members, 20 of whom are life members. About 600 old members pay a fee of $3. The balance are new members or former ones whose membership has lapsed, and who pay $5 each. A little figuring will show that the society's pocketbook this year was plethoric to the tune of almost $2,300. The secretary receives $700 per year.

The annual meetings are held in the dullest part of the florist's year, which is the third week in August, and always in some large city, where they become the guests, in a measure, of the local clubs. At these meetings pleasure is mixed with business to a larger extent than in any other organization in the country. At the recent meeting in New York, more than 1,000 visitors were entertained in various ways, at an expense to the local florists of several thousand dollars.

A floor space of 50,000 square feet (more than an acre) was devoted to plants, flowers and florist's supply exhibits, the exhibitors paying for the space used. Several paid as high as $72 each. The rentals amounted to more than $1,900, over $800 more than the expense of fitting up and maintaining the show, which included a superintendent's salary of $300. These figures are interesting, not only for their size, but as showing the business methods used to meet the enormous expenses of making such a show in the heart of New York. All the exhibitors had an interest in showing their goods, and could well afford the fees required. Medals and cups were offered as prizes, which, added to the advertising advantages, brought out the largest exhibit of the kind ever staged in America. No inducement was held out to get outsiders to come in, as the 1,200 or 1,500 people connected with the florists there made a sufficient attendance to use all the available aisle spaces.

It is not my purpose to go into any detailed report of the proceedings of the convention, as it would not interest you, and I have made these preliminary explanations to show you what the combined florists of America have accomplished in the way of organization in sixteen years since they first organized. The organization was formed in Cleveland, and the first large meeting held in Cincinnati one year later, so Ohio people have more than a passing interest in the success of the florist's organization. Perhaps it might not be out of place to give you some idea of the vast proportions to which the growing of flowers and plants has attained. One member of the society, Mr. Peter C. Reinberg, of Chicago, has about 14 acres under glass, and it will take more than $20,000 worth of coal, at $3.25 per ton, to warm these houses during the cold part of the present year. The place is devoted solely to the growing of plants sold at wholesale to other florists, and may be truthfully styled a huge plant factory. Another large concern in Chicago, containing about the same amount of glass, or 600,000 feet, is owned by Basset & Washburn, and is almost wholly devoted to growing carnations and roses for cutting.

There are only four members of the Ohio Horticultural Society connected with the Florists' Society, and only two went to the meeting, but I wish you could have all been there. The large membership fee was covered several times over by privileges and entertainments offered, and one could learn something at every turn in economy of business methods and short cuts to practical ends.

President O'Mara, for two years president of the New York Florist's Club, is the new president of the National Society, and his life is a striking commentary upon Mr. Bryan's often reiterated assertion that there is no chance for young men in this country. Mr. O'Mara commenced, when a little ragged Irish boy of eleven years, to plant onions for Peter Henderson. He was in the gardens and greenhouses for fifteen years, when he was transferred to the store, and put in charge of the plant trade there, a position which he has satisfactorily filled for 17 years.

His capacity for cool-headed handling of a thousand and one trifling details, which go to make the sum total of a successful meeting, was greatly tried at New York, but he came out with flying colors. Unruffled, suave and untiring, he won admiration from all.

The Hall of Assembly was a parallelogram of perhaps 120x80 feet, with the rostrum midway of one of the long sides. Whatever its size, it comfortably seated more than 1,200 people at both evening sessions. The entire hall was so heavily trimmed with foliage and flowers that only the windows and doors appeared. The entire ceiling was heavily lined with oak boughs—the kind with shiny green leaves. The hall was studded with pillars supporting the floor above and these columns were twined with smilax and other vines on the lower half with gladioli, tritoma and hydrangea above, each column having, however, but one sort of flower. With this form of trimming all laws of architecture were outraged, as no one ever saw a pillar two-fifths or one-half capital. Had the green reached to within twenty inches of the top, with an entablature of gladiolus or tritomas, and a capital and freize of hydrangea, sunflower or dahlias, the effect would have been architecturally better, and given a fine object-lesson in floral decoration of public assembly rooms.

Frames of solid green stood out from the window casings with corners of gay flowers, while between the windows and doors were panels of green surrounding masses of flowers of the season. As tritomas, hydrangeas, asters, sunflowers, gladiolus, hollyhocks and early dahlias were all the season, these panels were showy and striking. I heard it stated that $300 was paid for the decorating of the hall, and I suppose it was not too much for a job of that kind in the center of a great city. Covering a quarter of an acre of ceiling with thick oak foliage was no small undertaking, let alone lining the walls with flowers and foliage.

Like a great deal of florist's work, much of the decorating showed haste, which greatly marred high artistic effect; but I doubt not that many visiting florists took away hints of possibilities in decoration which had not before occurred. Such at least was the case with myself.

The framing of windows with borders of green starred with flowers, the setting of masses of flowers in solid panels of green, and the entire hiding of the ceiling in a mass of green, through which the great arc light shone like bright full moons, are innovations which might well be followed in provincial towns, in decorating churches for Christmas or weddings, and halls for conventions and political blow-outs.

I wish I could adequately describe all the beauty gathered in the hall of exhibits. A great part of them were staged on tables 30 inches wide, and it was like walking through a dim forest to pass among them.

Of all this acre of plants and bulbs of flowers and fruit and florists' supplies, two little exhibits stand out in my memory distinct and vivid as the most beautiful. One was a collection of apples, peaches, plums and grapes grown under glass. I did not suppose it was possible for apples to be so delicate and beautiful. Their appearance as compared with outdoor fruit is impossible to describe.

Perhaps I do not overstate the difference when I say that it was as wide as that between the most delicate china and common white ironstone. It is needless to say that no scar of curculio or borings of codling moth marred their perfect beauty.

The object most artistically beautiful of any growing things which I saw during my trip of eleven days, was a pyramid of crotons shown by C. Craig, of Philadelphia. The principal colors of these plants, you know, are yellow, pink and green, and varieties have been crossed until the shades and intermingling of colors makes a large variety. The texture of the leaves is such that the color has a varnished appearance, and generally the line between colors is abrupt, giving each color a distinctness not attainable where one color shades and blends into another.

They seem to grow crotons to perfection in Philadelphia, and a bed of crotons I saw at Fairmount Park was gorgeous beyond description. In fact, I saw so many crotons and acalyphas used in bedding around that city that I came home with a great distaste for such humdrum things as coleus and geraniums. The hall filled with tables and tall plants was quite dark, and had to be artificially lighted.

One morning I was wandering about in the semi-twilight, when through one of the long vistas, 100 feet distant or more, I saw in a pyramid of palms and ferns a pale, white light about as big as my hand, of about one-candle power. I could not make out its meaning, but upon going to it was astonished to find that it proceeded from a light cream-colored croton.

I immediately went to the pyramid of crotons to see how much light a pyramid of crotons would shed, but before I got there the lights were turned on, and I had no after opportunity to observe.

Since then, in going to market before daylight in dark November mornings, I met a cream-colored milk wagon, and I could see it before hearing the rattle of the wheels, and the front end, containing perhaps 17 square feet, gathered and reflected enough light to plainly outline the black horse, although I could see nothing else at that distance This makes me think that perhaps the little croton had no phosphorescent qualities other than its light color. However this may be, what I saw is, I think, a valuable hint in the way of brightening shadows and gloomy corners in the evening decorations of dark corners in churches and halls.

Among novelties shown at the exhibition was a dwarf and delicate form of tritoma, by Childs, and some star petunias, by Howard and son, of Belchertown, Mass., who are to introduce them next season. They were of all shades, and each petal had a dark triangular marking running from the center to near the outer edge, and forming altogether a beautiful and distinct star, with a point in each petal. Mr. Howard told me he had been fifteen years perfecting this beautiful and distinct novelty.

On Thursday the florists were given an excursion to Glen Island, a pleasure resort about two hours' ride out East River. Here a clam bake banquet was given, after which we took in the charming scenery and artificial planting of this fairy-like place. Connected by bridges with Glen Island are four other islands, the principal one, Glen, containing 79 acres. These are owned by Mr. Starin, a millionaire steamship owner, who has spent over a million of dollars improving what was before a very charming place.

The flower bedding and landscape planting are of a high order of artistic merit, and if you ever visit New York in midsummer, do not fail to visit Glen Island. One illustration will give you some idea of the magnitude of the purely ornamental work undertaken here. On the north side of a long, sweeping curve in a carriage drive was a piece of sweet corn of several acres, it being in tassel when I saw it. It skirted the drive for perhaps twenty-five rods. In front of that a green variety (President McKinley), with crimson blossoms.

Then there was a line each of salvia, geranium and the dwarf bedding begonia, bringing the long ribbon bed down to near the level of the narrow strip of lawn bordering the drive. The Black Beauty cannas, which variety by the way, fully bears out its name, being the darkest and most beautiful of dark leaved cannas, stood six feet high, shutting off all but the blooming topgallants of the corn, and thus making the corn field part of a gigantic ribbon bed, curious and wonderfully effective.

I wish I could find language to tell you how this cornfield was glorified and lifted out of the realm of roasting ears and fodder up into the kingdom of art and beauty to delight the eye and haunt the memory ever after.

Close to one end of this long ribbon bed the road forked and in the Y was a natural forest brought down in the obtuse rounded angle to the level of the drive by planting of shrubbery and a bit of lawn. On the right was a group of handy hydrangeas, with small perennial phlox mixed in giving quite a charming effect to the planting, as this hydrangea is somewhat cumbersome when planted in large masses alone.

Near by was a large shrub of the purple leaved filbert. This shrub is generally hard to grow, being not exactly adapted to the climate, but this specimen was perfect and the most beautiful shrub I saw on my trip. Taken altogether, the cornfield and ribbon bed, the beautiful sweeping drive divided by giant forest trees, with the ornamental point, all lit by the setting sun, made a picture worthy of a painter.

Two millions of people visited Glen Island this year, and as all had to go in Mr. Starin's steamboats at 50 cents per round trip, it will be seen that he is getting the Dutchman's one percent on his investment, and can well afford to trick out the bosom of his cornfield with flaming neckties of costly bedding plants. In making the trip to the convention, the tickets gave a time limit of 11 days, and as I took my 13-year-old boy with me, I took one of the routes via Washington and Philadelphia, with stop-over privileges at both places. We spent one day at Washington and two at Philadelphia.

As I am making these echoes bear principally upon ornamental floriculture, as being of most value and interest to this audience, I will leave New York and the meeting and devote a few minutes to some things we saw in other cities. In Philadelphia one-half day was given to Fairmount park.

In this park there is a large amount of flower bedding in all conceivable forms. West from the Centennial Horticultural hall is a sunken tract exactly the size of an abandoned canal well grassed over and now planted to mammoth flower beds. The planting is three or four rods wide and extends back from the conservatory nearly or quite 70 rods.

The bed of the sunken garden was mainly filled with beds of various kinds of bedding plants in many intricate geometric forms.

Large quantities of cannas were used but they get to be tiresome in such masses, and I do not believe they are best used in masses larger than a few feet across, especially the very free flowering dwarf varieties. There is too much bloom for the foliage, which only appears at the edges.

For ordinary lawns, I was satisfied that small beds of different kinds are better than one large mass. The larger the variety and the less bloom in proportion, the larger may be the bed, but large masses of giant cannas are only suitable for large lawns.

A great many of the cannas now sold by florists have the bloom developed at the expense of the foliage, which to my notion is over-development. The very large broad leaved cannas have a tropical beauty and grandeur which no addition of flowers can increase.

The flower garden at Fairmount had a very ingenious and pleasing border. Along the high edges, every fifty feet, was a bunch of salvia splendens in a square form, two feet across and three feet high, trimmed to the form as near as might be of a square pillar or post. Connecting these pillars was a single chain of dwarf geraniums or bedding begonias planted in a moderate curve reaching to the bottom of the bank. You have seen stone posts surrounding a little park or burial lot with a chain through them, and gently sagging between the posts. Well, from either end of this long garden this combination of salvia pillars and geranium chains had exactly the effect of a row of posts with a chain connecting them and the effect was more perfect because the lowest point in the sag of the geranium chain was four feet lower than the salvia pillar. The garden, as a whole, was most effective from the elevation of the balcony of the conservatory at the eastern end, but this was so old and rotten that the public was locked out and had to content itself with a look from the terrace.

At Girard college, a half acre of very brilliant planting in geometric forms separated by paths and strips of grass, becomes from the roof of the college a beautiful carpet or patchwork quilt of many pieces.

There is one variety of plants used much in the East which I scarcely see in Ohio and Michigan, and this is the Acalyphas. I cannot describe them to you, but the predominating color of one is pink and the other a dark plum, the leaves having a varnished surface and an absence of weediness which give them a high-toned appearance. At Dreer's I was shown a third variety of very light color which will be introduced in the near future. Unlike the crotons, the acalyphas can be produced comparatively cheaply and stand trying changes of weather as well as any common bedding plants. At Dreer's place we saw six acres of glass, almost entirely devoted to palms and ferns, and outdoors enough flowers and plants to occupy the time of the principal foreman two hours in showing and answering my numerous questions. A full recitation of what we saw and learned in two hours would occupy this whole evening in telling.

One of the wonderful sights there was an acre of cannas planted in rows like corn and in full bloom. With Black Beauty and other purple varieties planted in one corner and along one edge, it looked like a monstrous flag spread on the ground. One of the unusual sights at this place is an aquatic garden of about half an acre with about twenty kinds of water lilies. A swamp hole back some thirty rods from the Delaware river was made use of for this purpose, and being lower than the river, water is easily supplied. Plank sides running below the bottom have to be supplied to prevent the lily roots from spreading outside, and a great deal of weeding out and fussing has to be done to keep the rank growth from clogging itself. Another sight was a half acre of double petunias. Four men were engaged in taking cuttings and saving seed. Earlier in the season a good deal of artificial pollenizing and crossing had been done. Eighty hands are given employment for a good share of the year and some help is kept in California to look after certain lines of plants and seeds.

It was quite a sight to look into the palm houses with acre after acre of glass without a single partition, the eaves plates being iron columns and the perleins being of gas pipe through which flowed water, with connections for attached watering hose. In one place was a half acre of the Boston fern planted in benches. This fern increases exactly like strawberries by runners, and thousands were just beginning to root and in a week or two would be potted. Potted strawberries are one of the specialties of this firm and many thousands of two-inch pots with plants in them were standing on a bit of level ground between the greenhouses and a path.

Our stay in Washington was short, but long enough to notice how not to do ornamental bedding of flowers. The large garden on the way to the Agricultural Department is a strange medley, but it isn't a circumstance to the center of the National Cemetery. Indian hemp and pampas grass 10 or 12 feet high bordered with achyranthus, with beds of alternanthea and echeverias, a few feet away, are some of the novel features to be seen, but they are not more incongruous than the big circle of arches bearing the names of distinguished dead generals.

I know nothing of what is proper in graveyard architecture, but this looks to me like the unfinished commencement of a big summer house and with the much crowded buildings and strange flower beds look strangely out of drawing, somehow.

Altogether the small boy and myself got a good deal out of our trip to the Florist's convention, and we felt well paid, both in amusement and education.

L. B. PIERCE.

The President: Now, ladies and gentlemen, we will listen to an address by Mr. Arnold Shanklin, of the National Cash Register Company, of Dayton, on the subject of "Social Economics and Landscape Effects."

Mr. Shanklin's lecture was illustrated with stereopticon views and specially referred to the philanthropic work of the National Cash Register Company, among its thousands of employees. The views were of the finest character and set forth in the clearest way possible what can be accomplished in the way of floral decoration and home beautifying by flowers and shrubs and vines and trees at a trifling cost. Mr. Shanklin spoke for more than one hour and held the closest attention of his audience. His address was received with great applause, and when he had finished, he extended an invitation to all present to visit the works at Dayton.

Illustrated stereopticon lecture on Landscape Gardening by Arnold Shanklin, head of the Advance department of the National Cash Register Company, of Dayton, Ohio, given at request and under the auspices of the Ohio State Horticultural Society, at the courthouse, Troy, Ohio, Thursday evening, December 6, 1900.

The lecture had for its purposes the end in view to induce manufacturers to beautify their factory surroundings and to interest the entire community in the same good work. The National Cash Register Co., of Dayton, had gone more fully into this work than any other in this country. The pictures showed the factory as it was before any improvements were made, and then after the company had carried out the suggestions of Mr. J. C. Olmstead, of Boston, the one who laid out the World's Fair grounds at Chicago. The company believed that it must first clean up its own grounds before it could interest its employees to beautify theirs, and before the neighborhood people could be led to see that it was far better to live in a home surrounded by flowers than in one with a sodless yard and with dirt, ashes and lumber in the back yard.

After beautifying its own premises, it offered cash prizes of $250 for the prettiest front yards, back yards, window boxes and vine planting. The people soon took hold of the idea and, from year to year, the work has grown. The annual prize distribution is always a gala occasion and is held in the Opera House, if it occurs in winter, but if in summer, in the Patterson grove, just south of the factory. The prize winners are handed their money in gold and each is given a certificate, or diploma, signed by the president of the company, Mr. John H. Patterson, who has been the moving spirit in this work.

On K street, where so many of the employes live, each home, in the old days, was almost against a red, high board fence. It was suggested that the boards be covered with vines, and later it was suggested that the board fences be taken down and wire ones put up, and these covered with vines and at last many of the wire fences were taken down, and today the only dividing fence is a row of geraniums and other flowers. This is, as to the homes of the people who live within a radius of ten blocks around the factory, whether employes of the factory or not.

Through the efforts of the officers of the company, an unsightly high board fence around the Fair Grounds was removed and a high wire one put up—the Fair Grounds join the factory grounds on the west. At one time, it was proposed to cut down a hill just south of the City of Dayton. It was a beautiful grove, north of the factory. The people living in and about there got together and fought the matter so strongly that the council decided to let it stand and today it is one of the ideal spots in Dayton.

We then decided to give the boys in the neighborhood something to do, and Mr. John H. Patterson set aside, from his own private ground, just south of the factory, two acres of land to be used for N. C. R. Boy's Gardens. The company puts the boys for two years in charge of a competent, practical gardener, who teaches them to enrich and till the soil and raise twenty-two kinds of vegetables. The boys must take home all vegetables necessary for the use of his home people and can sell the balance, and those having the best gardens get prices ranging from $15 to $5—a total of $50.

The first year, it was hard work to get 41 boys to go into it; the next year the whole number of lots had been proportioned off the first day; the third year they were all gone before the first work was begun, and we have had so many requests for this year that two more acres have been added and we will have 84 boys there this season—each boy has a plot of 10 by 160 feet. It gives them something to do; it keeps them out of mischief; it supplies the families with vegetables free, for the company furnishes all seeds and plants free; it prepares the boys to earn a living as practical gardeners for, with a knowledge of how to care for and raise 22 kinds of vegetables, he is well equipped; it also proves to the people that they do not need a big field if they would have a garden, but a small back yard can be made to yield enough of good, wholesome vegetables to supply an average family.

We then found that the railroad companies would join with us. Some of the worst yards were those that were along the lines of the several railroads. Visitors coming into Dayton saw these first and had the wrong impression of the city. We added prizes for the prettiest back yards along railroads and the railroad companies offered a pass to the best two—the trips to be to a town within two hundred miles from Dayton. This has had its good effect. Now strangers have a good impression of our city. And the people are better for it.

Last June, the Ladies' Home Journal offered $50 for the prettiest back yard grown in a city. Same to be judged by pictures sent in. The contest closed on October 1st, and on October 10th, Mrs. Bickford, wife of the head of our No. 79 department, received a check for $50 from the Curtis Publishing Co. Our workmen

have the pleasure of looking over this beautiful yard. A picture of this, with every subject considered by Mr. Shanklin, was thrown on the screen.

The National Cash Register Co. has proven to itself, and is proving to the world's manufacturers that it does pay to teach its people to beautify their homes. What could be more uplifting, more refining, more elevating!

By doing this for their working people, they get not only their brawn, but their heart and their brain as well. What woman or man could not do better work looking out over pretty yards, than if having to see a pile of dirt or a heap of rubbish each time they raised their eyes!

The President: Last year after the address that we had along this same line, we had quite a good deal of discussion. Is there anything that you desire to offer tonight? In the final resolutions that were offered by the committee and adopted by the Society this evening, Mr. Shanklin and the National Cash Register Company were given the thanks of the Society. Mr. Shanklin has given us a splendid address, and I know that we will all carry the ideas home that we received here tonight and try to spread them broadcast among the people and appropriate them for our own use. Is there anything further before adjournment?

Dr. Chamberlain: I would like to say a word or two before we adjourn. One is that I was detained in Dayton, or rather I had first planned to come through Dayton and arrive there very early in the morning and look over this institution. Having been detained there or having missed my train, I had two or three hours and as I had read in various magazines, including the Century Magazine for the present month, illustrated articles in regard to this institution, for it is an institution, and I had read in regard to the talk before the Society last year in Newark, I went there, and the thing that struck my mind, the two things were, first the momentous business push of that concern. Here are probably one hundred or two hundred nearly different patents, covering almost every useful thing that they have, with the different machines that go to make up the ever so many forms of the cash register, which is sold in every civilized country and half-civilized country of the globe, equipped for registering pounds, shillings and pence, and the denominations of all the languages of earth, requiring so many different kinds of machinery in its manufacture. Now, the point I want to make is this: Surrounded with one hundred or more patents and with their tremendous push to coin money—for their patents make them a monopoly of the world—this institution, instead of piling up money in the banks and using it on wine and women and foreign travel exclusively, has put it into the lives of its employees, and has lifted them up from factory children, such as they have in old England and on the Continent, into self-respecting American citizens. (Applause.) One of the most magnificent pieces of work that I have ever seen anywhere, and I was shown through that whole establishment by the official guide, shown the marvelous mechanism of those machines, into which, for example, long cylinders of brass are fed and out comes a complicated attachment for the machine, or into which a particular pattern and each one working at a certain portion of a bar of steel is fed and out comes a complicated thumb screw for a particular portion of the acres of those machines, each one of a different pattern and each one working at a certain portion of that cash register. My admiration increased constantly. Then as I went to the dining room of the girls and saw the room, larger than this, and saw a table filled with eatables where these girls go for an hour at noon and eat the lunch that they choose to bring, with a certain bill of fare that is presented to them for one cent, giving them vitality for work after dinner, as I have said, my amazement increased more and more. And then I went to the sales lecture room where one who is an expert as a salesman, and as a mechanic, takes the different forms of the machine and shows them to 20 or 30 men who have been picked out in all the agencies over the country as shrewd men, men who have come there to learn the latest thing that there is, and show the good points of a good thing without lying about it; explaining them so that the salesmen may sell them. That was an amazement to me. And then I went into the bath room, the tub rooms for the girls, and the sprinklers for the men, and saw the complete system. A man wants a bath at two o'clock Thursday afternoon and his name is registered and nobody can have that one of the 10 or 12 sprinklers, except himself at that hour. It is a perfect system, and twice in each week one of the employees, to whom are paid $33,000 a week in wages, can have a bath, if I remember correctly, in the summer, and perhaps one in the winter. As I went all through that institution it seemed to me that I hadn't seen anything more Christlike in the 60 years and more of my life. It is the difference between taking this monopoly for coining wealth and spending the money upon men and women who are the head of it, and taking that vast monopoly and diffusing its benefits among all the employees of that institution. It is a grand piece of work. Advertising! Of course, these things advertise the institution, but that is not the design. And I was reminded of that story that I told once before in the hearing of some of you of a Yankee who was traveling in Italy and visited Saint Peter's church, and there was the Irish priest, who was acting as a guide and telling him of some of the dimensions of the church and how much ground it covered. He said: "The dome is 313 feet high," and the Yankee kept saying "You don't say so?" And finally when the priest was explaining some things about the church, the Yankee said, "Why it beats the Devil, don't it?" And the Irish priest somewhat astonished, crossed himself, at the mention of that awful name, and says: "Yis, sor, that war the intintion of the church." (Laughter.)

I tell you it is the intention of such work as is done today in Dayton to beat the Devil, and they are beating the Devil there faster than he can be beaten and put down in any other way that I know of, and I glory in it as an Ohio institution, an institution of the Miami Valley, an institution which is drawing the admiration of the whole world through the magazines and papers. Of course they will make money. Of course they ought to make money, and they are diffusing it in the way to do the most possible good. (Great applause.)

The Committee on Resolutions drafted the resolution before they knew the results of the election, or they certainly would have introduced a resolution, which I beg leave to introduce now in substance, that this Society regards with the very highest appreciation and affection their retiring President and the work that he has done in this Society.

And, thereupon, the resolution was unanimously adopted.

Mr. Shirer: I am glad, Mr. Chairman, that Dr. Chamberlain did get it in his head to go down to Dayton. I am glad that a representative from the northeastern section of the state came down to Dayton and is now persuaded that Dayton can beat that man he spoke about (great laughter), and if Dayton can beat him probably Cleveland will wipe him out at the other end of the State of Ohio, and maybe if these two cities dispose of him Cincinnati will follow, and all three can drive him out of the state.

Mr. Sweet: I move you that this Association return greetings to the Michigan Horticultural Society for the message and greetings that it sent us.

The President: All in favor of that motion will say aye.

Motion carried unanimously.

The President: The Secretary will take the proper way of extending that greeting. Is there anything further? If not, I want to say before we adjourn that I wish to thank the members of this Society for the courtesy and respect which they have always shown to me as President. We have dwelt together here in unity of spirit and purpose for the cause of horticulture, and it certainly is very pleasant for me to leave off the work where I do and turn it over into the hands of so worthy a member as you have chosen for my successor. My interest will be the same in the State Horticultural Society in the future that it has been in the past. I thank you.

Mr. Pierce: I move we adjourn until the first Wednesday of December, next year.

Motion carried unanimously.

LIST OF MEMBERS

OF

Ohio State Horticultural Society.

A

Name.	Town.	County.
Aultfather, H. H	Minerva	Stark
Atwater, J.	Castalia	Erie
Albaugh, N. H.	Phoneton	Miami
Allen, C. W.	Erie, Mich.	
Adams, F. E.	Newark	Licking
Arthur, Mrs. K. A	Zanesville	Muskingum

B

Beaver, J. F	Dayton	Montgomery
Britton, J. H.	Painesville	Lake
Bear, J. C.	Dayton	Montgomery
Bitzer, Michael.	New Berlin	Stark
Buechly, E. M.	Greenville	Darke
Baker, C. V	Stoutsville	Fairfield
Ballou, F. H.	Newark	Licking
Brown, F. I.	Columbus	Franklin

C

Cushman, E. H.	Sylvania	Lucas
Cox, Nelson.	Bradrick	Lawrence
Cox, U. T	Bradrick	Lawrence
Cox, E. G.	Bradrick	Lawrence
Counter, C. W.	Toledo	Lucas
Cole, W. B	Painesville	Lake
Coit, C. B.	Glenville	Cuyahoga
Litzenberg, John.	Findlay	Hancock
Carr, F. E.	Lakewood	Cuyahoga
Courtright, S.	Lancaster	Fairfield
Coan, J. L	Dayton	Montgomery
Chamberlain, W. I	Hudson	Summit
Culbertson, E.	Grand Rapids	Wood

D

Name.	Town.	County.
Dillie, W. W	West Mentor	Cuyahoga
Dillie, O. N	Nottingham	Cuyahoga
Deming Co.	Salem	Columbiana
Dayton, J.	Painesville	Lake

E

Earhart, W.	Lexington	Richland
Elliott. Albert.	Defiance	Defiance
Eggleston, L.	Bloomingburg	Fayette

F

Farnsworth, W. W	Waterville	Lucas
Farnsworth, W. G	Waterville	Lucas
Frease. E. S	Okolona	Henry
Foote, J. L.	South Brooklyn	Cuyahoga
Freeman. C. M	Tippecanoe City	Miami
Ford, J. H	Ravenna	Portage
Flanders, O. H	Tiffin	Seneca
Frahn, A. C	New Carlisle	Clark
Freeman, Isaac.	Tippecanoe City	Miami
Fergus, S. R	Phoneton	Miami

G

Gatton Bros.	Belleville	Richland
Green, W. J	Wooster	Wayne
Gault, W. C	Ruggles	Ashland
Geib, Geo. P	Cleveland	Cuyahoga
Gill, Geo. W	Columbus	Franklin

H

Harrison, J. J	Painesville	Lake (Hon. Mem.)
Hathaway, A. F.	Station F, Cleveland	Cuyahoga
Hale, O. W	Akron	Summit
Harrington, C.	Box 293, Painesville	Lake
Hunt, R. A.	Euclid	Cuyahoga
Humphrey, A. E	Mad River	Clark
Hegler, M. A	Xenia	Greene

I

Imlay. J. D	Zanesville	Muskingum

J

Name.	Town.	County.
Johnson, T. C	Gypsum	Ottawa
James, John A	Washington C. H	Fayette

K

Name.	Town.	County.
Knellinger, Frank	Zanesville	Muskingum
Kislingbery, Thos.	Newark	Licking

L

Name.	Town.	County.
Loop, A. J	North East, Pa.	
Lazenby, W. R	Columbus, O.	
Laupee, Chas.	Urbana	Champaign
Lawrence, James A.	Harlem Springs	Carroll
Litzenberg, John.	Findlay	Hancock
Larue, Joseph.	Convoy	Paulding
Lentz, D. H.	Piqua	Miami
Lullman, H. H	Danbury	Ottawa
Lupton, B. C	Mt. Pleasant	Jefferson
Lawrence, W. R	Marion	Marion

M

Name.	Town.	County.
Miller, Wm.	Gypsum	Ottawa
Moore, S. R	Zanesville	Muskingum
Montgomery, Cary W	Newark	Licking
Mumma, A. M	Dayton	Montgomery
Miller, J. A	Osborne	Summit
Marion, G. C	Nebraska	Pickaway
Miesse, M.	Lancaster	Fairfield
McNary, J. W	Columbus	Franklin (Hon. Mem.)
Moore, S. Reuben.	Piqua	Miami
Mooney, E. K	Madeira	Hamilton

O

Name.	Town.	County.
Ohmer, N.	Dayton	Montgomery (Hon. Mem.)
Overhalser, D	Alpha	Greene
Owen, W. H	Catawba	Ottawa

P

Name.	Town.	County.
Pierce, L. B.	Tallmadge	Summit
Perrine, J.	Camp Hagerman	Warren
Philpot, S. A	McClure	Henry
Price, Homer C	Columbus	Franklin
Peirce, John.	Troy	Miami
Peirce, W. C	Troy	Miami
Porter, W. D	Cincinnati	Hamilton

R

Name.	Town.	County.
Ragan, Wm. H	Green Castle, Ind	(Hon. Mem.)
Roudebush, Lowell	Owensville	Clermont

S

Name.	Town.	County.
Shirer, Albert	Dayton	Montgomery
Sweet, M. E	Kirtland	Lake
Suter, Peter	Waterville	Lucas
Sterling, C. C	Grand Rapids	Wood
Selby, A. D	Wooster	Wayne
Scarff, W. N	New Carlisle	Clark
Storrs, Wm. G	Painesville	Lake
Schule, Christian	Cleveland	Cuyahoga
Sheldon, J. R	Waterford	Washington
Seward, A. D	St. Louisville	Licking
Streeper, J. P	Columbus	Franklin
Swabley, G	Tiffin	Seneca
Shuey, E. H	Dayton	Montgomery
Sala, C. B	Minerva	Stark

T

Name.	Town.	County.
Tryon, J. H	Willoughby	Lake (Hon. Mem.)
Tussing, R. J	Canal Winchester	Franklin
Teeter, D. M	Belleville	Richland
Thomas, Oliver	Mt. Pleasant	Jefferson
Travis, E. T	Defiance	Defiance
Taylor, Samuel	Pleasant Corners	Franklin
Thomas, L. A	Troy	Miami

V

Name.	Town.	County.
Van Deman, H. A	Parksley, Virginia	(Hon. Mem.)
Vergon, F. P	Delaware	Delaware

W

Name.	Town.	County.
Withoft, Fred G	Dayton	Montgomery
Waid, C. H	Wauseon	Fulton
Woodard, E. M	Kirtland	Lake
Whitney, C. L	Warren	Trumbull
Webster, F. M	Wooster	Wayne
Williams, Israel	Hamilton	Butler
Wyckoff, A	Dayton	Montgomery
Wheeler, W. J	Paulding	Paulding
Warder, R. H	North Bend	Hamilton
Whitacre, T. L	East Rochester	Columbiana